

**YOUR GUIDE TO NO-SOIL GROWING**

# HIGH TIMES

February 469

**2015**  
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**SPECIAL**

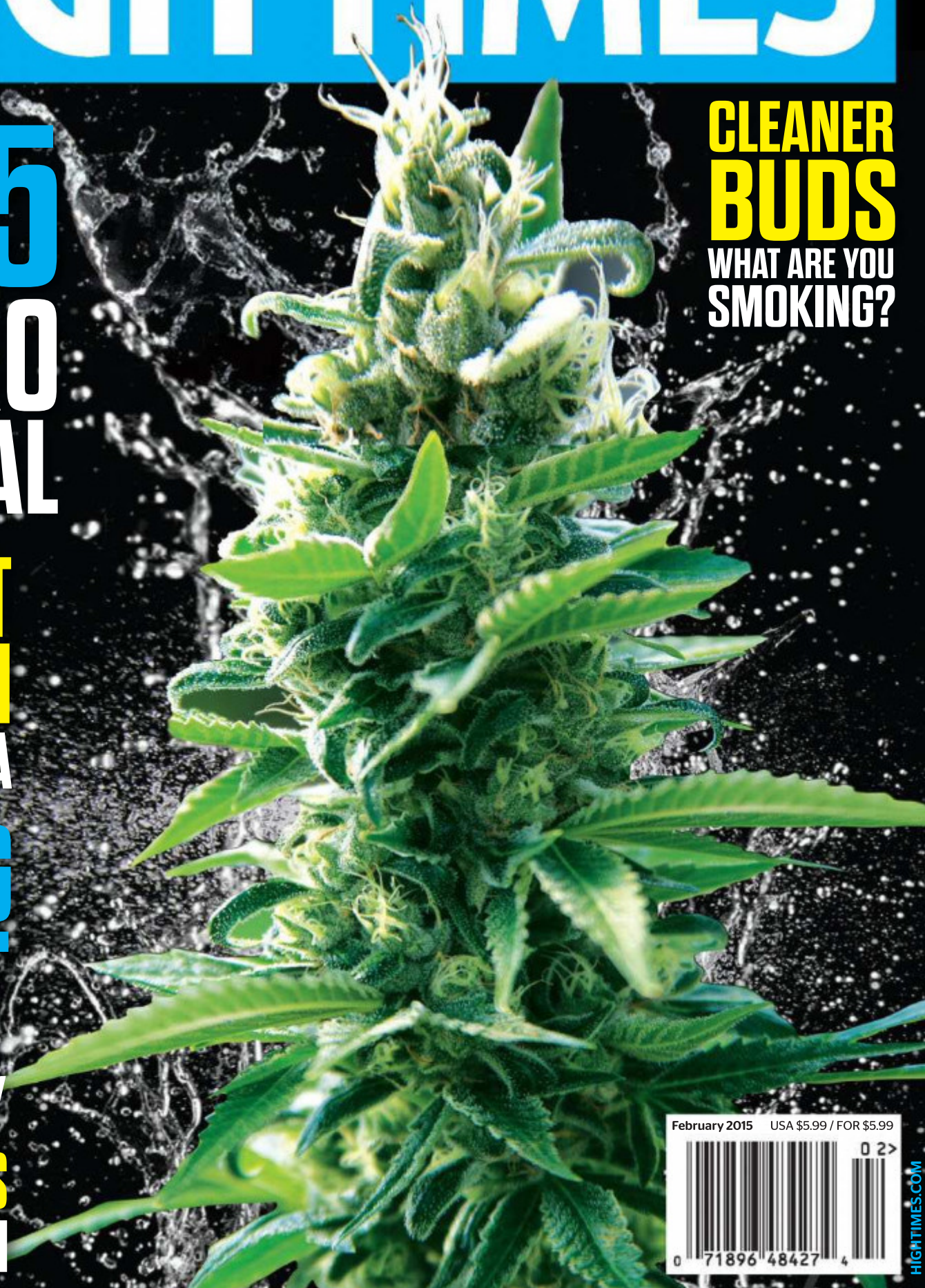
**HIGHEST**  
**GARDEN**  
**IN AMERICA**

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**POT**

**A TASTY HISTORY**

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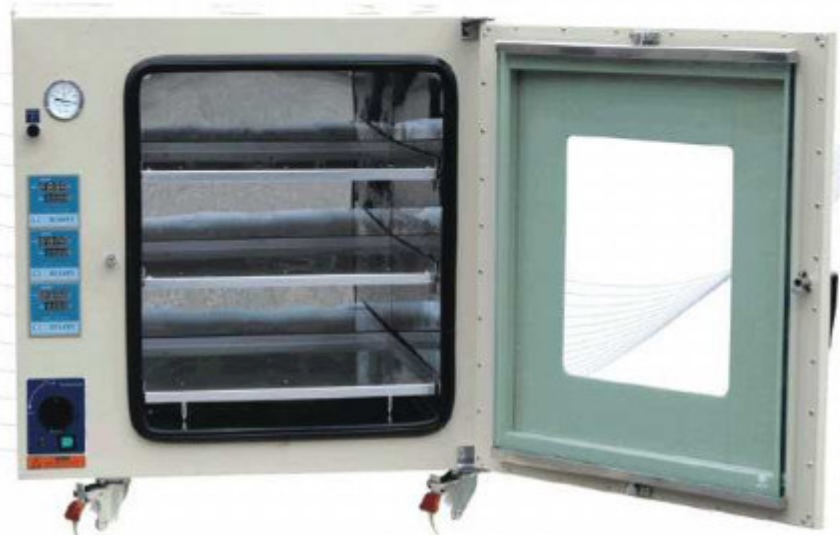
Edwards vacuum pumps and accessories



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1.9 Cu Ft 16x14x14" vacuum ovens with high speed pump and mist filter



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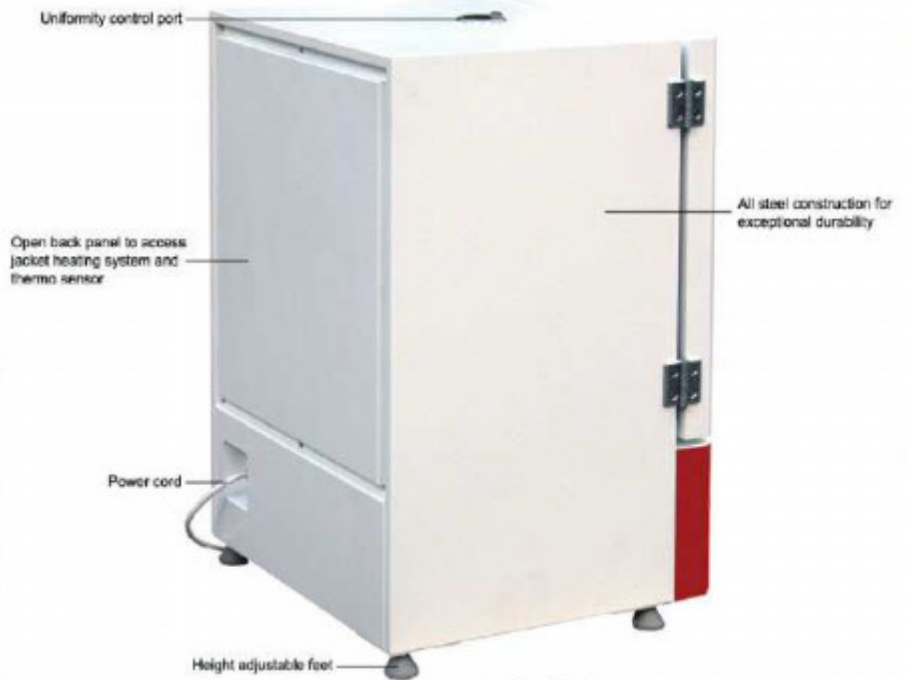
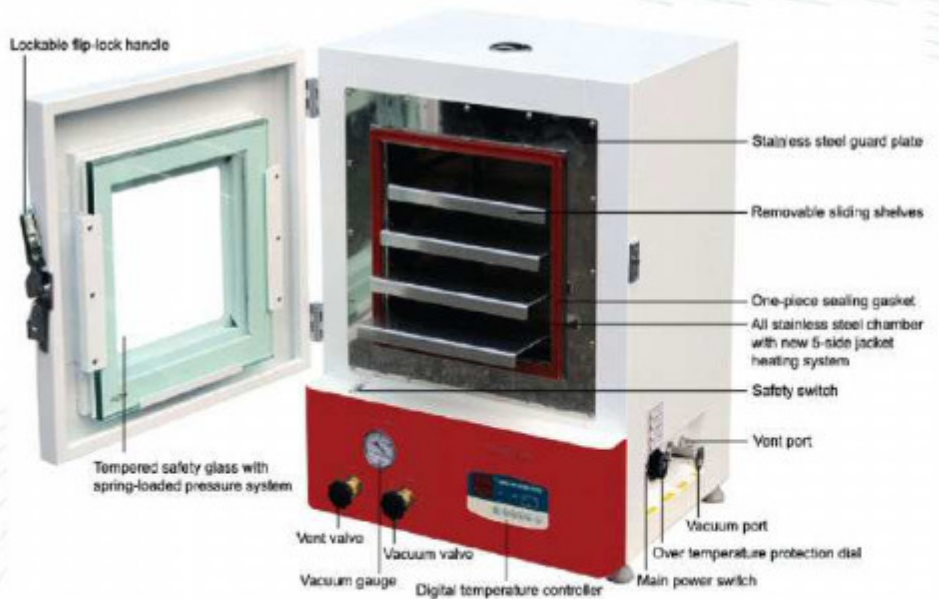
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# HIGH TIMES FEBRUARY



*“There’s a lot of automation in our rooms, but we’re very hands-on, with daily defoliation, pruning and plucking. Our plants are almost over-trained to direct all their energy to flower and bud development.”*

—America’s Highest Garden, page 72

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What do you do on your 40th birthday? You invite hundreds of honored guests to light up and toast 40 years of *High Times* magazine carrying the banner for legalization.

*By Mary Jane Gibson*

## **55 2015 Hydro Report**

All of the information, technology and equipment you need to get growing without soil. Grow hydroponic pot in new sustainable ways for bigger yields and heavy harvests.

## **72 America’s Highest Garden**

If you wanna get high, you’re in the right place. That’s because the hydro gardens of High Country Healing represent the highest grow op in North America. *By Dan Skye*

## **88 Golden Age of Edibles**

Learn how ancient peoples included cannabis in their diet for relaxation and revelation, as well as how the practice changed and spread over time. *By Elise McDonough*

## **99 How Clean Is Your Cannabis?**

You just bought some wax. But do you know what’s in it, who blasted it or who grew the plants—let alone how they were grown? Here are some valuable pointers for consumers.

*By Darryl Hudson*

## **109 High Times Interview: Hannibal Bures**

The funniest comedians are the ones who can relate a simple experience and make you see the uproarious absurdity of daily life. That’s Hannibal Bures. *By Dan Skye*

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Find all this and more at [hightimes.com](http://hightimes.com).



Make your special stoner happy.

## Gift Guides Galore!

It's that time of year when everyone wants to show that special stoner in their life how much they care about them. Lucky for you, we've compiled a compendium of stoner gift lists. Check out our holiday gift recommendations for professional stoners, college stoners, hippie stoners, sporty stoners—every kind of stoner under the stoner sun! They run the gamut from cheap-o to lavish. Make your special stoner extra happy this holiday season.

## Top Hot Pot Shot of the Week

If you've got a camera or a cell phone and you like pot, then you should be entering our weekly photo contest. It's called Top Hot Pot Shot of the Week and it's only in the *High Times* newsletter. Every week we give away cool prizes to a top pot-ographer winner. You can subscribe to the *High Times* weekly newsletter on the [hightimes.com](http://hightimes.com) home page. Then send us your winning entry!

## The Best of Social Media

We get to see and hear it all here at *High Times*. And you should, too. That's why we run the best Tweets and Instagrams of the week for your pleasure. If you want to say something to the world—or you've got an image of pot that will shake it up—send it our way!

## Glass Artist of the Month

Hickory has been exploring the art pipe-making through the medium of borosilicate glass since 2001. He had been creating pipes from different materials for years—stone, wood, and antlers—prior to discovering glassblowing. But once he gave lampworking a try, he understood that the possibilities were limitless in this medium. He knew there was no going back.

His style evolved as he explored the nuances of form, color, and technique. In recent years, though, Hickory can say his unique style is firmly grounded in nature.

When crafting a piece, Hickory regards



Hickory on the torch

function as the primary importance in its overall design aesthetic. His long-time reverence for cannabis has inspired his work to be organic and in tune with nature. "I strive to connect the ritual of using the plant in a meaningful way to my pieces," he says.

[Check out Hickory's work online.](#)



Miss February 2014

NAME: Jenn Doe  
SCREEN NAME: Jenn Doe  
CITY: Vancouver, WA  
OCC: Grower, hash maker  
AGE: 33

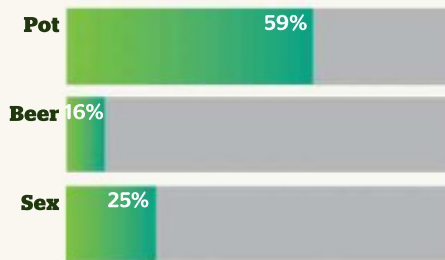
To enter or view contestants, go to [misshightimes.com](http://misshightimes.com). You must be 18 or older to enter.

### POT POLL

## What could you do without?

We posed an intriguing question online. We asked: "If you absolutely had to give up one of the following items for six months, which is the one that you absolutely would NOT give up?" Among the 3,000 respondents, pot won out easily, while sex grabbed 25 percent of the vote. Beer got 16 percent. Beer over pot and sex? Who are you people?

[Cast your vote in our latest poll online!](#)





# DON'T BUY INTO THE HYPE!

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*"The cure for anything is salt water—tears, sweat, or the sea."*

—Isak Dinesen, *Seven Gothic Tales*

## Hydro Chronic

**K**aren Blixen, the famed Danish author best known for writing *Out of Africa* under the pen name Isak Dinesen, likely never suspected how true her words would be when it comes to hydroponic horticulture. The “cure” for traditional soil-grown pot is water mixed with salts to create a nutrient solution. Plants grown hydroponically—i.e., without soil—exhibit explosive growth rates far exceeding their soil-based counterparts. Understanding what’s in your reservoir is the ultimate key to a successful hydro harvest.

It all might sound a bit complicated and high-tech from afar, but the truth is that soilless growing has been around since the ancient Hanging Gardens of Babylon. All that’s required is a fundamental understanding of the basic needs of roots: food, water, and oxygen at the proper levels and temperature. And that’s what we’ve provided in our annual Hydro Report, along with equipment reviews and some tips and tricks for mastering the art of hydro growing. We’ve even included a list of reasons why hydroponics may be *more* sustainable in terms of the environment than growing with soil indoors.

Also in this issue: Dan Skye takes a look at “America’s Highest Garden,” a licensed Colorado grow op over 10,000 feet above sea level. Elise McDonough, author of *The Official High Times Cannabis Cookbook* and the just-released *Marijuana for Everybody*, discusses the history of marijuana edibles. We’ve also included an in-depth article on the potential dangers posed by contaminants in marijuana concentrates and a *High Times* interview with the hilarious comedian Hannibal Burrese. So fire up a joint of your own homegrown hydro, and enjoy!

*Danny Danko*  
Senior Cultivation Editor

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**Scared of Ebola**

I searched the *High Times* website, but I couldn't find any information on Ebola and sharing pipes, joints, etc.

*David*

The Ebola virus is transmitted by direct contact with the bodily fluids of a person who is showing symptoms of the disease, so—obviously—you should never share a pipe, joint, etc., with someone who has contracted Ebola. But the symptoms are so serious—among them, vomiting, diarrhea, high fever, chest and stomach pain, and bleeding from the eyes—that people infected with Ebola will likely have other things on their minds than toking up.

**Colorado Sucks!**

On July 6, my wife and I moved from Nashville, TN, to Colorado Springs to treat her multiple sclerosis with medical-grade cannabis. Problem is, we can't find any here! So far, we've been to 24 dispensaries and have sampled over 60 "strains." It's all low-grade garbage ... every bit of it! We've been here for over three months and haven't gotten high yet! This is Colorado's dirty little secret—it's like the DEA is providing the seed stock.

There is no mandatory potency testing, and if there were, every dispensary in this state would be out of business. No MS patients are going to get any relief from muscle spasms, and no cancer patients are going to get any relief from the nausea caused by chemotherapy, from anything sold by these dispensaries! It's all crap!! The entire cannabis industry here in Colorado—medical and recreational—is a hoax, a fraud and a sham!!!

*J. Levy*

We're sorry to hear that your wife is suffering. But cannabis is not a panacea; it can't cure everything and everyone. There are definitive studies showing that cannabis offers relief to those who suffer from MS, but it may be that your wife is one of those people for whom it doesn't work.

As far as Colorado's cannabis industry is concerned, we respectfully—but vehemently—disagree. There are scores of reputable dispensaries statewide selling outstanding cannabis products. As far as testing goes, the mandatory testing of all cannabis products for potency is currently being implemented throughout the state.

**Please Legalize!**

I'm 19 years old and live in Deerfield Beach, FL. I have two sisters—one is 13, and the other (my twin) is 19. I wanted to tell you a little bit about my story. When I was 8, my mom went to prison. It left a mark on me because SWAT busted our



**“Death Star is one of my favorites: Its spicy undertones and sour, fuel-like taste are exquisite. I’ve never tried Sensi Star by itself, but at this year’s Cannabis Cup in Denver, I’ll be on the hunt for it!”**

house so many times. By the age of 12, my doctor started to notice that I didn't talk much or have many friends. When I turned 13, they found that I was suffering from PTSD, severe depression and bipolar disorder. It was hard to get out of bed. I didn't eat, didn't sleep—I was like a walking zombie. By 16, it was at the point that I couldn't even get out of bed to go to school or bathe myself.

When I was 12, my sister was diagnosed as an epileptic. She has trouble remembering things sometimes. On our 18th birthday, her doctor told me that her brain cells were dying because she was having so many seizures.

I prayed for her a lot. One day I asked her about trying weed. We did and it started helping a lot. She has less of the seizures now. I really want them to legalize weed because me and my sister both need it really bad.

*Bryttany T.*

**My Favorite Strain**

My vote has to be for Sensi Star. I may be a little biased, however: I'm from Ohio, and we're known for the strain Death Star. Since Sensi Star is a parent to this strain, I am obligated to choose it. Death

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Star is one of my favorites: Its spicy undertones and sour, fuel-like taste are exquisite. I've never tried Sensi Star by itself, but at this year's Cannabis Cup in Denver, I'll be on the hunt for it!

*Nick P.*

**Halloween Warning**

I just saw an article on CNN outlining the potential dangers of marijuana candy in Colorado. We're all human and make mistakes—I can definitely see some naïve wife or girlfriend tossing some into a candy bowl without knowing. Hopefully, all such candy will have a warning label—but a 5-year-old might simply tear into it and eat it anyway. So here's a reminder: Come Halloween, keep the medicine in the medicine cabinet!

*Mark O.*

That's good advice, but it's hard to believe that someone would get their edibles mixed up with a bag of mini Kit Kat bars to be handed out to trick-or-treaters. It's interesting, though, that you "can definitely see some naïve wife or girlfriend tossing some into the candy bowl." Sounds like stoner sexism is alive and well!

**Fear and Loathing in the Heartland**

Last year, while driving home to Indiana from the High Times Cannabis Cup in Colorado, I was stopped in Illinois. I'd won a few things at the Cup in a raffle. It was all confiscated.

After they found everything, my car was towed to the police station. It seemed like they were going to let me go, if I could pay for the tow. But after spending most of my money, and not having a debit card, I couldn't afford it at that moment. Long story short, they made me do a urine test. Coming back from Colorado, I obviously failed and was charged with a DUI. I was kept in jail until someone could drive two and a half hours to bail me out.

It's all over now, after I paid a lawyer \$2,000. I haven't smoked in over a year for fear of ever being pulled over and having that happen again. The illegalization of marijuana is horrible. It's scared me so badly as to have nightmares about hitting a blunt. I used to love the lifestyle, but no longer see myself going back to it unless I live in a legalized state.

*Shannon*

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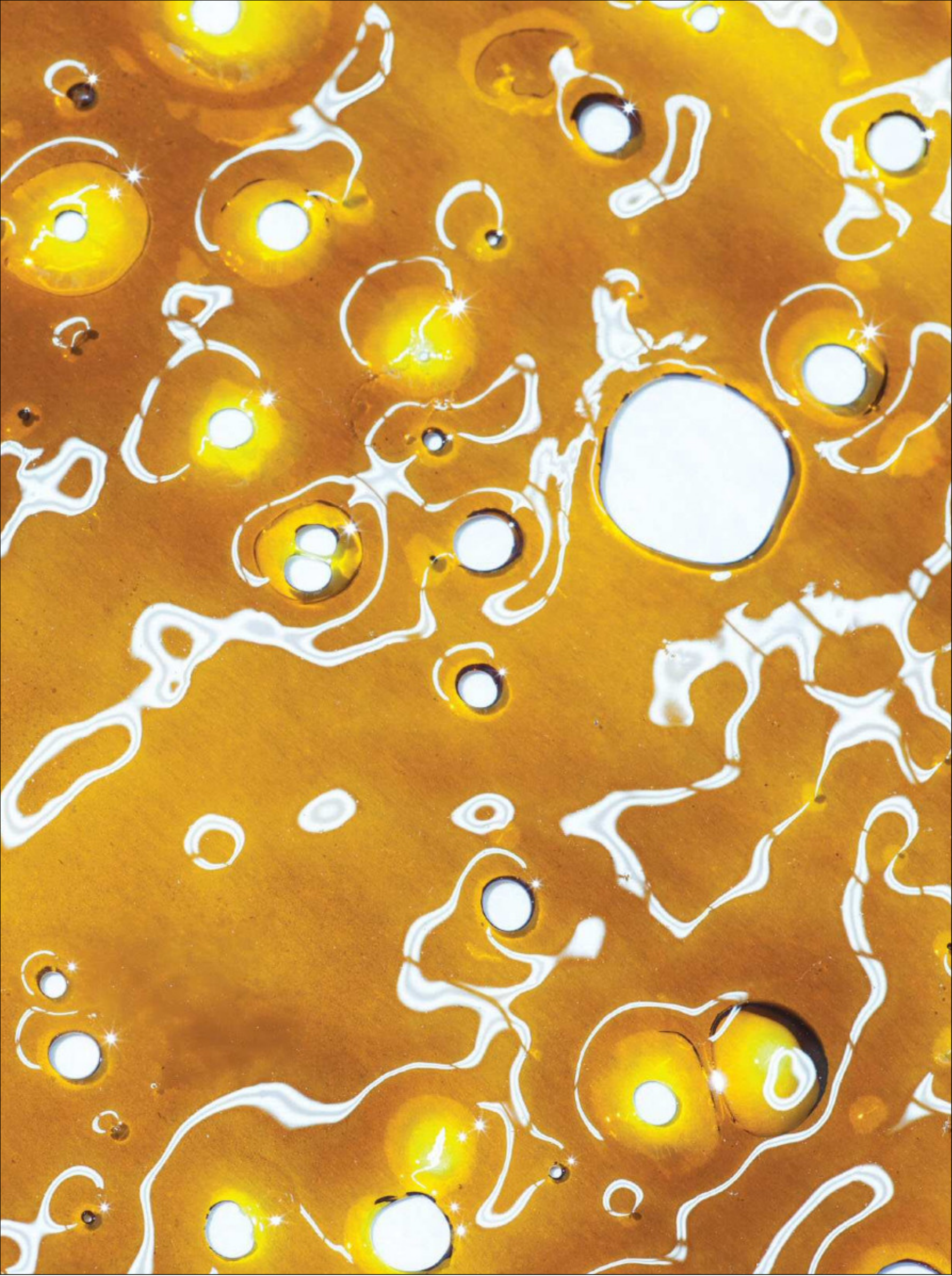
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**CONTAMINANTS IN CONCENTRATES** Whether you're a medical marijuana patient or a cannabis connoisseur, the cleanliness of your pot products is vital to your health and enjoyment. Check out a PhD's take on "How Clean is Your Cannabis?" on page 99 for detailed info on what's in your dabs, oils and waxes. *Photo by Freebie*









February 2015 **High Times**

**ELEVATION SENSATION** This mountain of pot sits at 12,500 feet on the slopes of Windy Ridge on the Continental Divide in Colorado. That's 2,000 feet above tiny Alma, CO, home of High Country Healing and America's highest garden and dispensary. Check out "America's Highest Garden" on page 72. *Photo by Dan Skye*

19

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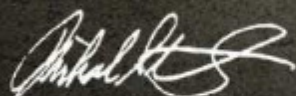
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Look, you're smarter than that. We all know the imitation colas you buy from discount stores are "reverse-engineered" to copy Coca-Cola® too. But is it exactly the same? Absolutely not!

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# Highwitness News

Graham Nash,  
Political  
Rocker



## Entertainment

### Gibbs Goes Big

Freddie Gibbs goes off on pot. p.34



## Food

### Lemon Haze Chiffon Pie

Make the pie that gets you baked! p.40



Fracking is another example of corporations endangering the public for profit.



## Getting Fracked!

Our existence depends on clean water. That's why the fracking industry must be stopped. *By Kent Lebsack*

**Is fracking dangerous?** The short answer is *yes*.

Fracking (short for “hydraulic fracturing”) is the oil and gas industries’ highly controversial process for retrieving natural gas from deposits in shale rock 6,000 to 10,000 feet (or one to two miles) beneath the surface of the earth. Highly pressurized water, mixed with a veritable gumbo of highly toxic chemicals and sand, is injected into the “well,” creating a chemical reaction that opens fissures in the shale. Natural gas escapes through the fissures and is drawn back up the well to the surface, where it is processed, refined and shipped to market.

Gee! What could possibly go wrong? Let’s start with the fracking mixture, which is made up of highly corrosive and carcinogenic chemicals. It seems reasonable to regulate the chemicals that make up this mixture, but the industry considers that information a trade secret—and, of course, the government and courts have supported that position.

We do know that there are approximately 600 different chemicals that the industry can choose from. These include methane, benzene and toluene (all of which are considered toxic under the Clean Air Act and the Safe Drinking Water Act), plus diesel fuel, lead, sulfuric

acid and formaldehyde, just to name a few. Not all 600 chemicals are used in a single injection (or frack). The industry asserts that only five to 10 chemicals are used per frack, and this makes a difference because, presumably, there is safety in using fewer chemicals. But whatever the concoction, there can be from 80 to 300 *tons* of these chemicals used in each injection. What the industry also fails to mention is that, although a fracking well may be host to “only” 300 tons of hazardous chemicals, a fracking minefield contains thousands of wells, all using different compounds, amassing an enormous cumulative effect.

The industry may insist that the fracking process itself is not dangerous, but the components used in the process definitely cause problems. In Pennsylvania, inspectors found that nearly 1 in 10 wells had faulty cement and steel casings, making them prone to leaks and contamination.

« Because these drilling sites are not only vertical, but also travel horizontally—sometimes for miles—the risk presented by these faulty “components” is greatly increased. A Pennsylvania study shows this risk has increased since 2009 with the growth of the fracking boom, and that the depth and breadth of the wells has increased as well. How can the components of fracking be separated from the safety of the process?

Fracking presents levels of potential contamination never experienced before—and, increasingly, water is the victim. Wastewater, called “flowback water” or “produced water,” returns to the surface after the fracking process is completed. There is no known way to effectively dispose of it. Some of this water is reused, but that only delays the ultimate problem. Some of it is pumped into even deeper injection wells, which, according to Dr. Bill Chameides of Duke University, causes “an earthquake every now and again.”

The only other known way to dispose of this wastewater would be to treat it. But the technology has not kept up with the industry here. Highly sophisticated processes are required, and, to date, none have proven effective.

Beyond the issues of water contamination

## Colorado—a state close to the hearts of all in the cannabis community—is second only to Texas in the number of fracking wells.

and wastewater disposal, the sheer quantity of water used is enormous. Two to eight *million* gallons of water are used per frack. These millions of gallons are used across minefields, which can be populated by thousands of mines, and each fracking well can be used repeatedly. It’s no wonder that water-usage calculations can’t be found in the research. The industry doesn’t know—or perhaps it’s willfully ignorant.

Moreover, rarely do fracking minefields have access to that quantity of water; it has to be brought in, mostly by truck. According to the New York State Department of Environmental Conservation, each frack requires 400 to 600 tanker trucks for each well and another 200 to 300 tanker trucks to take away the liquid waste from that frack.

The potential for disaster is consistently minimized or dismissed entirely. However, it’s not corporations who will live with the contamination or pay to try to clean it up—we will. Earlier in September, John Gladden, a retired research

manager and fracking foe, told commissioners in North Carolina what the average person seems to understand, but the industry chooses to ignore: “It’s cheaper to prevent contamination than to clean it up.”

Fracking operations are currently underway in at least 17 states. Sadly, Colorado—a state close to the hearts of all in the cannabis community—is second only to Texas in the number of fracking wells. Colorado may be enjoying a pop-culture grooviness because of legal weed, but its environmental policies leave a lot to be desired.

Many municipalities are challenging the frackers, but the government and corporations have put up many roadblocks. As human beings—and, in particular, as human beings who smoke pot—it is our responsibility to support these challenges, in Colorado and across the nation. Legal cannabis production and retail sales may usher in a new viable industry, but let’s never forget that it’s completely reliant on *clean* water. ✨

### HIGH FIVE

## High on Hemp

Finally, industrial hemp is being embraced worldwide. *By Mark Miller*



### Kentucky Harvest

On September 23, the first legal hemp harvest in the Bluegrass State since World War II occurred at the University of Kentucky’s Spindletop Research Farm, which is cultivating and evaluating 13 different types of hemp for seed and fiber production. Some of the seeds were shipped from Italy. They were detained by US Customs officials in May, until the Feds approved a permit.



### Global Gains

Europe reached a new record in hemp-seed production in 2013 with 9,000 metric tons (almost 20 million pounds). In Canada, 36,000 hectares (approximately 90,000 acres) were utilized for hemp-seed production in 2014. In 2015, that total is expected to increase to 50,000 hectares, for both human food and animal feed markets. Hemp has been around for centuries. Everything old is new again.



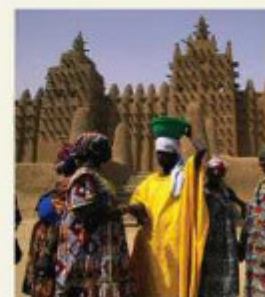
### Oregon Gets Ready

Measure 91 would legalize recreational pot in Oregon, but a less-publicized provision moves the state closer to an industrial-hemp industry. The state decriminalized hemp production in 2009, but because of the federal ban, the State Department of Agriculture refused to issue any hemp-production licenses. Measure 91 removes all barriers to hemp production and would allow licensing.



### House of Hemp

Hempcrete is both the common and brand name for construction materials consisting of the inner woody core of hemp combined with a lime-based binder, known for its superior acoustic and thermal insulation. Last August, 64-year-old Bob Clayton unveiled his hempcrete house in Tarpon Springs, FL. The house is reportedly only the fourth hemp home currently standing in the US.



### Mali Moves Forward

In September, the Global Hemp Group partnered with the Republic of Mali’s national agricultural research institute to investigate industrial-hemp cultivation. As in Kentucky, varieties of hemp will be analyzed to determine those best suited to be cultivated in this West African nation struggling with deforestation and drought, with the long-term goal of establishing a Malian hemp industry.



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## Melissa's MJ Biz

Rock star Melissa Etheridge says she's developing a cannabis-infused wine that she promises will "taste amazing." On the Bloomberg TV program *Taking Stock*, Etheridge gushed: "I believe this is a huge opportunity—a huge business and a huge market."

Etheridge has plans to attach her name to a number of new cannabis products. She also discussed her use of medical marijuana in successfully coping with breast cancer: "Cannabis kept me very healthy during chemotherapy. I would highly recommend anyone who is undergoing [chemo] to really look into the medical sides [of pot]."

Before her wine and other ganja goodies can be sold commercially, Etheridge said, there are a handful of legal issues that need to be addressed. But once those are settled, she looks forward to "bringing this to the world in a not-scary way, not an outlaw way. It's not that anymore. This is an American business."



## Billions in Buds

Green Wave Advisers, a group founded to research and analyze the emerging cannabis industry, states that by 2020 the industry could be worth as much as \$35 billion yearly if pot is legalized at a national level. The *Washington Post* crunched those numbers. That would make the business of pot bigger than the NFL, America's newspaper publishing industry or even the confection industry. (We expect profits to soar in the confection industry too!)



## Marijuana and the Marathon Bombing

Pot smoke continues to swirl around the 2013 Boston Marathon bombing. In October, defense attorneys for Robel Phillipos, a childhood friend of bombing suspect Dzhokhar Tsarnaev, argued in federal court that Phillipos was so "high out of his mind" that he can't recall accompanying two other friends to Tsarnaev's dorm room to remove incriminating evidence three days after the attack. Phillipos, 20, faces two counts of lying to the FBI, thereby depriving the Feds of critical information during the height of their bombing investigation. He faces up to 16 years in prison if convicted.

Phillipos's defense attorney, Derege Demissie, argues that his client signed a confession admitting to being in Tsarnaev's dorm room only after being placed under intense pressure by the Feds—not because Phillipos actually recalled being in the dorm. So he doesn't remember witnessing Azamat Tazhayakov and Dias Kadyrbayev removing a backpack containing modified fireworks. For his part, Assistant US Attorney John Capin insists that Phillipos "created a fiction."



## Pothead Protection

New research proves that pot provides neuroprotection against traumatic brain injury (TBI), with THC actually limiting the presence of toxic chemicals while decreasing swelling in the brain.

The Los Angeles Biomedical Research Institute investigated 446 TBI patients who were administered urinalysis to detect THC. Of the 82 patients who tested positive for THC, only 2.4 percent died. The remaining 364 TBI patients—who had no discernible THC in their system—had a significantly higher death rate: 11.5 percent.

Lead author Dr. David Plurad noted that this trend had already been observed in earlier animal research: "Previous studies found certain compounds in marijuana helped protect the brain in animals after a trauma."

So pot may protect as well as stimulate your brain—but don't toss that motorcycle helmet.

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## The UN: Ineffectual, As Always

In October, a top official at the United Nations Office on Drugs and Crime (UNODC) rejected an international panel's well-reasoned recommendation that UN countries should experiment with decriminalizing and regulating illegal drugs such as cannabis.

The Global Commission on Drug Policy is a 22-person panel, formed in 2011, that includes such luminaries as ex-Mexican President Ernesto Zedillo, Virgin Group billionaire Richard Branson and even ex-UN Secretary-General Kofi Annan. The commission's September 2014 report, *Taking Control: Pathways to Drug Policies That Work*, calls for an end to criminalizing people for drug use and requiring "compulsory treatment" for individuals whose only offense is a drug violation. The commission also advocated alternatives to incarceration for nonviolent, low-level participants in manufacturing and trafficking operations.

However, Yury Fedotov, executive director of the UNODC, believes that the recommendations would undermine major provisions of international drug-control treaties, adding that "such experiments certainly will make drugs more available and cheaper."

But the commission's report was extremely blunt: "The international drug-control regime is broken."

And yet the UN continues to insist on adherence to outdated treaties that impede meaningful drug-law reform across the globe.



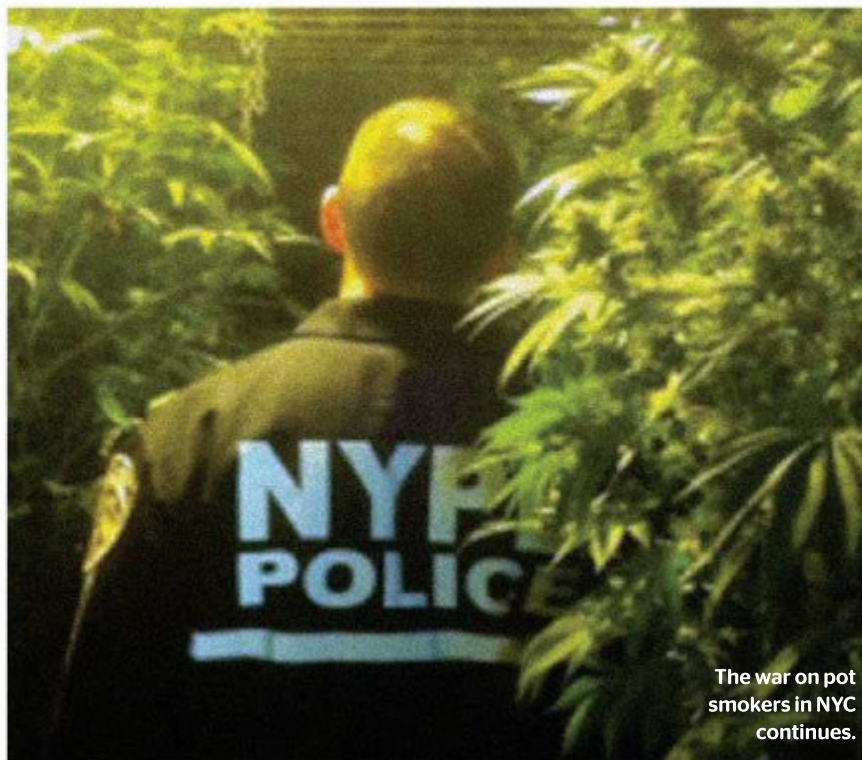
## Plant Offers Pot

When ex-Led Zeppelin vocalist Robert Plant recently appeared on *The Colbert Report*, he came bearing gifts, presenting host Stephen Colbert with what definitely appeared to be a joint. "I brought you a little present from our stock room," Plant said.

Colbert accepted the doobie and asked, "What is that?" Then he sniffed it and said: "Let's find out what this is later, shall we?"

Plant countered: "I think it's one of the accessories of being, not quite a knight of the British Empire, but on the way."

Colbert quipped, "And for the purposes of my lawyer and my network, this is a cigarette." Then he deftly slipped the jay inside his jacket. No word on whether they toked up later.



The war on pot smokers in NYC continues.

## Shame of New York City

Last year, nearly 50,000 people were arrested for possession in New York City. What's more, recent studies demonstrate clear racial bias in arrests for low-level possession, with African-Americans arrested four times more frequently as whites—despite roughly equal usage rates. When New York City Mayor Bill de Blasio campaigned for office last year, he called the policy "unjust and wrong."

But it's business as usual in the Big Apple under Mayor de Blasio. According to a new report from the Marijuana Arrest Research Project and the Drug Policy Alliance, pot busts are up from March to August of 2014 compared to the same period last year under Mayor Bloomberg. The new report also sheds light on the racially disparate impact of prohibition, finding that 86 percent of those busted in that time period were black or Latino. Just 10 percent were white.

## Elitism at Work

The pot-marketing agency Cannabrand found itself doing spin control to limit the damage to its reputation after insulting the cannabis community. On October 3, *The New York Times* ran a story titled "In Colorado, a Rebranding of Pot Inc." It featured a profile of Olivia Mannix and Jennifer DeFalco, the co-founders of Cannabrand. Mannix said: "We're weeding out the stoners. We want to show the world that normal, professional, successful people consume cannabis."

Right. There's no chance in hell of a "stoner" being successful or professional or normal. She also said dispensaries "look like underground abortion clinics."

Not to be outdone, DeFalco insisted that legal cannabis ads are full of "women with whipped cream straddling bongos."

Such rhetoric hardly went unnoticed. Mindful, a Colorado dispensary group, quickly terminated its business with the company, calling the comments "hurtful and insulting to the industry and to the many that have fought so hard for years in the name of patient rights and safe access."

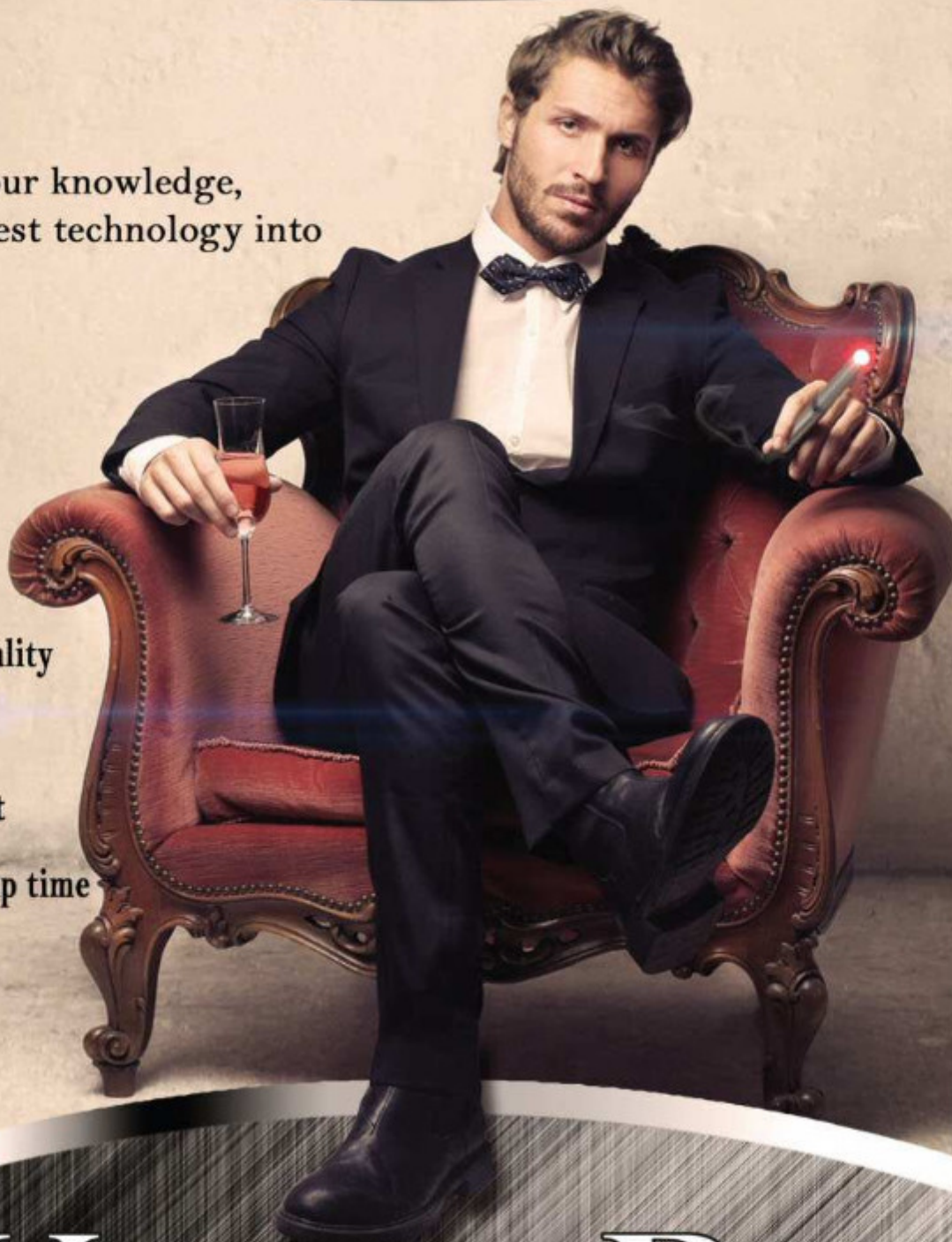
Mannix and DeFalco issued a joint statement: "There were several quotes that did not clearly convey our stance. Please let us clarify: we support everyone in the marijuana industry, and it's unfortunate that those statements do not accurately portray Cannabrand or our community."



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HIGHWIRE

## Dispatches from the international drug war. *By Bill Weinberg*



### ISIS to Attack the US Through Mexico—Not!

Here we go again. Francis X. Taylor, undersecretary for intelligence at the Department of Homeland Security, testified before the Senate Homeland Security Committee on September 10 that operatives from the extremist jihadi movement known as ISIS (or ISIL, or the Islamic State) have discussed infiltrating the US through Mexico. “There have been Twitter and social-media exchanges among ISIL adherents across the globe speaking about that as a possibility,” Taylor said in response to a question by Senator John McCain, who asked if ISIS chatter had been intercepted that “would urge infiltration into the United States across our southwestern border.” But Taylor said he was “satisfied that we have the intelligence and the capability at our border that would prevent that activity.” Pressed further, he admitted: “At present, DHS is unaware of any specific, credible threat to the US homeland from ISIL.”

We’ve been hearing the same paranoid tune for years now—only the names have changed. A year ago, officials and pundits were speculating about Hezbollah plotting with the Mexican cartels,



### Record Bust in Peru Points to More Cartel Influence

A record-breaking cocaine bust on Peru’s coast indicates not only the country’s booming production, but also the increasing role of Mexican cartels in the Andean narco economy. Peru’s Interior Ministry announced the haul on September 1, saying that National Police and DEA agents had uncovered an unprecedented 7.6 metric tons of cocaine hidden in a coal shipment at a warehouse in the port of Huanchaco.

Paperwork seized at the warehouse indicated that the shipment was bound for Spain and Belgium. Eight Peruvians and two Mexicans were arrested. The Interior Ministry said that a Mexican gang arranged the shipment.

Peru’s cocaine boom can be attributed to the “success” of the US-led eradication efforts in Colombia, which have pushed production into the neighboring country in a case of the “balloon effect”—ironically, the exact opposite of what happened in the 1990s, when aggressive eradication in Peru led to the Colombian boom.

or Al Qaeda recruiting criminal gangs to send terrorists across the border. The Mexican government has denied any Islamist militant presence in the country.

This propaganda motif dates back to World War I, when fears were stoked of a German invasion of the US via Mexico. An intercepted German diplomatic cable—the notorious Zimmerman telegram—invited Mexico to join the Central Powers. Nothing ever came of it; Mexico told Kaiser Wilhelm to take a hike. But the revelation fueled war fever and actually helped propel the United States into the global conflict. A century later, you’d think the trick would be getting a little stale.



### Protesters Demand Release of Vigilante Leader

Supporters of José Manuel Mireles Valverde, imprisoned leader of the “self-defense” forces in Mexico’s violence-torn Michoacán state, are holding protests to demand his release. Mireles was the one “community police” leader who refused to accept the government’s deal to bring local militias under its control. He was arrested on June 27 at

the Michoacán pueblo of La Mira and charged with narcotics and arms trafficking. His lawyers say the evidence against him was fabricated and that he was tortured in detention. His supporters insist that Mireles is being punished for opposing the plan to integrate local militias into the official security forces, which are deeply corrupted by the drug cartels.

### A New “Pax Mafiosa” in Mexico?

Amnesty International on September 4 issued a report harshly criticizing the Mexican government for its failure to stop torture and other “cruel, inhuman or degrading treatment” at the hands of the military and police. The report calls on



Mexico to enforce human-rights laws. Instead, President Enrique Peña Nieto has created even more layers of police. In addition to the Rural Defense Corps that incorporates local “self-defense” militias in Michoacán, he unveiled a “national gendarmerie” to help the police battle gangs. But adding to police forces merely provides more firepower for the cartels to co-opt—a situation that won’t change until the underlying roots of Mexico’s narco violence are addressed.

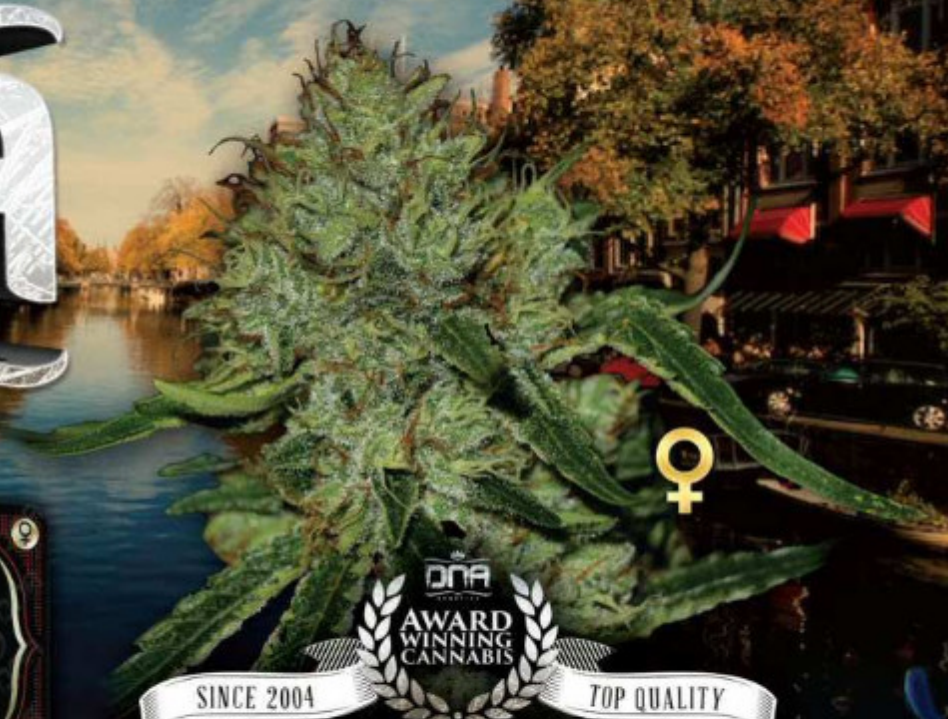
Since Peña Nieto took office, there has been speculation that his government could rebuild the “Pax Mafiosa” that more or less kept the peace between rival cartels under the country’s old one-party state. Ironically, the opening of Mexico to a multi-party system with the 2000 election of Vicente Fox marked the beginning of its descent into endless cartel warfare. Peña Nieto’s election returned to power the Institutional Revolutionary Party (PRI) from the one-party era, when the Mexican government brokered a turf division among the cartels. 🌿

*For updates on these and other stories, see Bill Weinberg’s websites, [GlobalGanjaReport.com](http://GlobalGanjaReport.com) and [WorldWar4Report.com](http://WorldWar4Report.com).*

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## Pot for Your G-Spot?

Like an inexorable flow of lava down the side of an erupting volcano, new pot products are seeping into every corner of the market—including a new cannabis-infused “sensual enhancement oil.” Foria harnesses the well-known aphrodisiac power of marijuana with an alluring invitation to “slow down, relax deeply, and discover the pleasure within.”

The personal lubricant is designed for use by women. Aphrodite Group, the medical collective behind the oil, says it created Foria to “benefit women’s health and well-being by opening the door to natural, euphoric pleasure.” The oil’s orgasm-enhancing claims have garnered plenty of attention, and the response has been enthusiastic. Effects can vary depending on a woman’s menstrual cycle—which is interesting, especially in light of a recent study showing that female rats are more sensitive to THC than males, thanks to their estrogen levels.

Women describe their experience with the oil as “buzzy,” “tingly,” “relaxing” and “magic.” The *HT* staffer who tried it out experienced “a soft, warm, melting feeling,” saying, “On the pleasure spectrum, I’d rate it a nice, mellow body high.”

Whether you experience heightened sensation or sweet relaxation, it seems that this pot-enhanced oil may indeed be good for your punani.



## Kick Tobacco with Shrooms!

*Psilocybe cubensis*—magic mushrooms—have been used in healing rituals for thousands of years; now, a new study suggests that the curative powers of shrooms may help longtime cigarette smokers kick the habit better than any pharmaceutical drug.

Johns Hopkins researchers report that 80 percent of smokers receiving a controlled dose of psilocybin while participating in a cognitive-behavioral-therapy program abstained from smoking for six months—much higher than the typical success rate of less than 30 percent using nicotine replacement and behavioral therapy. Even the most effective

smoking-cessation drug, varenicline, has only a 35 percent success rate after six months.

The study, published in the *Journal of Psychopharmacology*, observed 15 men and women who smoked, on average, 19 cigarettes a day for 31 years. All had repeatedly tried, and failed, to quit.

Despite the 80 percent success rate, researchers strongly cautioned that the study results did not justify do-it-yourself attempts at quitting smoking through the use of psychedelics. Professor Matthew W. Johnson, a co-author of the study, says the psilocybin was administered “after careful preparation and in a therapeutic context.” The subjects, all mentally and physically healthy, reported minimal past use of hallucinogens; five had never taken psychedelics of any kind. Clinicians administered a dose of psilocybin to each participant on the day they planned to quit smoking; two subsequent sessions with higher doses were held two and eight weeks later. During each six- to seven-hour session, participants were monitored in a homelike environment, wearing eyeshades and listening to music through headphones, and encouraged to relax and focus inward. The shroom sessions were supplemented with weekly counseling.

Researchers suggest that the psilocybin helped break the cycle of addictive thoughts and behaviors, with the benefits of the drug lasting long after its physical effects had worn off. Professor Johnson and the Johns Hopkins team will next compare the success rates of psilocybin and nicotine patches, using MRI scans to study brain activity. Stay tuned for more interesting results from the world of magic-mushroom medicine.

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## SPOTLIGHT

### HoodLamb Furry Hoody

HoodLamb is going global, and we couldn't be happier about it. The Amsterdam-based clothing company has always incorporated beautiful little touches for marijuana aficionados in its eco-conscious fashion, like the secret stash pocket in this luxurious hoody. Faux-fur pockets warm your hands right back up after puffing on a cold day, and the all-encompassing hood will make you feel as snug as a bug in a deep-pile rug. The hoody is made from soft, thick hemp and organic cotton fleece and its patented Satifur lining will keep you insulated against an Arctic gale. Heavy-duty zippers add a touch of industrial cool, and we love the thumbholes in the cuffs. Snowboarders, now you can smuggle your stash to the slopes in style!

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Higher than the sky: Gibbs sparks up.

**“Let’s just smoke a blunt for the ALS Challenge! Let’s legalize weed and use the revenue to research ALS, or sickle-cell anemia, paralysis.”**

was one of many street substances Gibbs sold to get by. Back then, he’d get gripped up and cuffed for having a few small bags in his pocket. Today, he gets a slap on the wrist for an ounce. He could have used that kind of leniency as a young kid, but if now is when America decides to change its mind on weed, Freddie Gibbs is with the trend. As he puts it: “Everybody’s running around dumping goddamn ice on themselves for the ALS Challenge. Nigga, let’s just smoke a blunt for the ALS Challenge! Let’s legalize weed and use the revenue to research ALS, or sickle-cell anemia, paralysis, things of that nature. I’ve been selling weed since I was 13, so I know the value of some weed. Everyone in the country wants it. Let’s put it to good use.”

As for the legal business of weed, Gibbs sees many of his fellow rappers jumping into the game with newfangled vape pens. He’s not wholly convinced. “I fuck with it, but I’m not about to load it up myself. I’m just an old-fashioned blunt-smoking nigga off the street. I don’t got time for that shit.” What he would have time for, however, is a partnership with Backwoods. As Gibbs lights a fresh one, he brainstorms a name. “We’d call it Crackwoods,” he says finally. ✨

## Have Weed, Will Travel

We find out all about Freddie Gibbs’ latest projects and what’s fueling his high-energy performances. *By Chris Simunek*

**At this very** moment, it’s likely that Freddie Gibbs has some spare pot in his luggage. “Y’all check my bag, there might be some weed in there,” he tells us, relighting a Backwoods blunt that went out in his hand as he gesticulated. He takes a fat pull and addresses the world: “I’ll keep it real with y’all. You wanna lock me up? That’s what I do, that’s my shit, and I’ll be doing it until y’all legalize it.”

Following a slew of independent mixtapes that raised his profile to a national level—and, most recently, a renowned album produced by eminent weedhead

loop-digger Madlib—Gibbs finds himself traversing the country to perform. And there’s no way he’s making those trips without copious amounts of bud on hand. Gibbs recalls a recent stint with rapper Tech N9ne: “On that tour, I was definitely the big smoker. We weren’t even supposed to have weed on the bus. But I always have weed. I don’t give a fuck about the rules.”

A couple years back, his nonchalant possession earned him a gentle reprimand from the TSA. After retrieving his checked bag, he found a note that read “C’mon, son” in the place where he’d stashed

his weed. The funny part is, the weed was still there—the TSA didn’t even confiscate it. Gibbs chuckles as he tells the story: “They just said to hide it better.” This was a revelation to him. “It just let me know that, all right, I’ll keep bringing my weed.”

Today, pot gives him calm and creativity in the studio and on the road, but it wasn’t always that way. When he was growing up in Gary, IN, weed



### Gibbs on Ganja

Rapper Freddie Gibbs is smoking furiously through tours with Tech N9ne, studio sessions with Madlib, and his own steady ascent on the global hip-hop scene. And he’s fearless about the extra ounce stashed in his bag.



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# A Graham of Nash

Original Woodstock warrior talks about drug use, the environment and his historic tunes. *By Jen Bernstein*

JUST AS HIGH TIMES CELEBRATED TURNING 40, LEGENDARY ROCKERS AND ORIGINAL WOODSTOCK PERFORMERS CROSBY, STILLS & NASH CELEBRATED THE SAME MILESTONE OF A 1974 TOUR THAT BROUGHT ICONIC TUNES LIKE “TEACH YOUR CHILDREN,” “MARRAKECH EXPRESS” AND “OUR HOUSE” TO 24 CITIES ACROSS THE GLOBE. BOTH MAGAZINE AND MUSICIAN SHARE A COMMON HISTORY—ONE THAT CHALLENGES THE STATUS QUO, QUESTIONS AUTHORITY AND CELEBRATES THE COUNTERCULTURAL SPIRIT.

**In your autobiography, *Wild Tales*, one of the book's opening photos is of a tray with lots of weed and different accoutrements. Was smoking marijuana an important part of your life?**

We were high constantly—all the time. Not only on marijuana, but cocaine, also. I don't advocate that people take drugs, but at that time they did pretty good for me. I think smoking dope opened up my mind of the possibilities, it took me out of Manchester [England], and it made my mind flower. I enjoyed it tremendously.

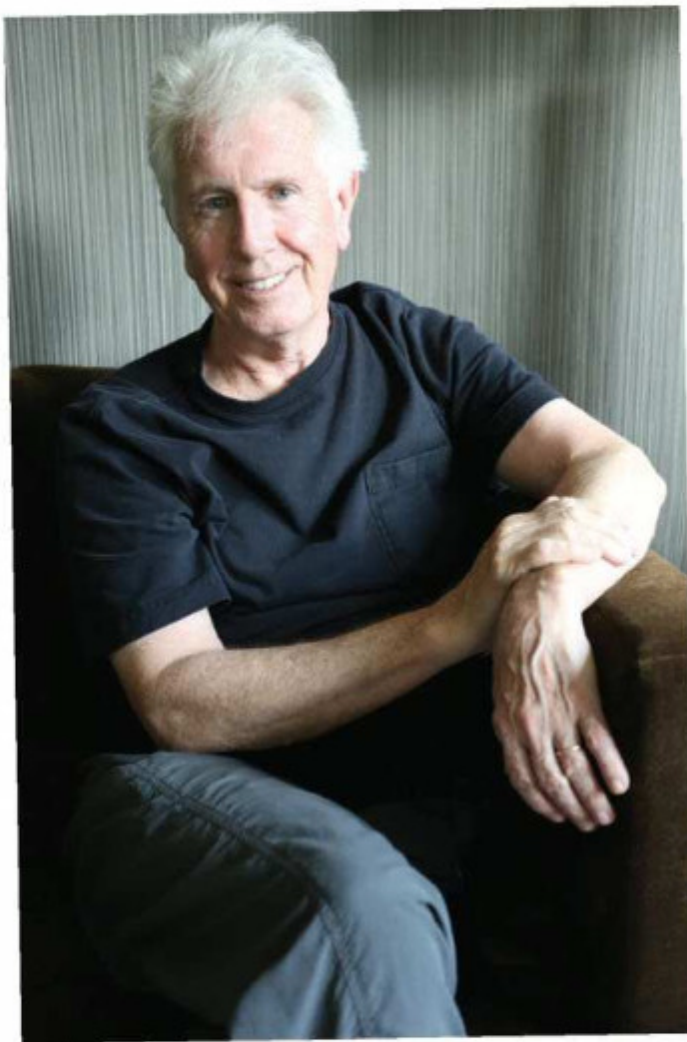
**Did you use cannabis as part of your songwriting process?**

No, I was high all the time, it was a part of every process. It wasn't like I smoked dope to write.

**Do you still use cannabis?**

I love to smoke dope. I'm very interested in seeing what's going on with people in Colorado, Washington State and Alaska. I think people really need to come out from under the reefer madness craziness.

But it's changing now. People understand that if you want to go and smoke a joint,



“We were high constantly—all the time. Not only marijuana, but cocaine, also.”

the last thing you want to do is fight. But if you get drunk, the first thing you wanna do is fight. I don't agree with [an] American society where liquor is completely legal because it kills many, many thousands of people per year—not only in abuse of alcohol—but in road accidents, rage and shootings. When people smoke dope, the last thing they want to do is get into an argument and start fighting. I don't know anybody that smokes dope and wants to fight. Do you?

**No, I've only ever seen people fight over the next hit. You've been through lots of different political movements, do you consider marijuana a political movement now?**

Everything's politics. Getting up and having breakfast is politics. I was amazed to read the Maureen Dowd



#### Life Used to Be So Hard

During the summer of '74 Crosby, Stills and Nash embarked on their biggest tour in history. “It was a wild, profligate, orgiastic, self-indulgent couple of months, loaded with crazy scenes and often wonderful music,” says Nash.

article where she overate too many pot cookies and told everybody what a horrible time she had, and how she ended up in the fetal position. What she never told you about was the dozen of times she was fucking blasted on alcohol and didn't know whether her knickers were on or off.

**You're a big environmentalist. Right now what is your biggest issue?**

The ocean and the planet we live on. It's very obvious what's going on; 98 percent of the scientists know global warming is happening. They know that humanity is a major cause and that it's going to get incredibly bad in the next few years.

**In the song “Déjà Vu,” there's a great line about how “we've all been here before,” and how history repeats itself. Are there political situations that we're dealing with now that also resonated with you in 1974?**

Well, “Military Madness” is a song I wrote for my father going off to World War II, and yet look where we are. We were just in Iraq and now we are in Afghanistan and in Yemen, and Somalia, and all the other places that we've got wars going on. “Field Worker” is about the plight of people that grow our food and pull it out of the ground and put it on our tables. Immigration matters: look at what's going on even today is about the immigration situation. So a lot of those songs that we spoke about are still problems today. It's a dichotomy because it's thrilling that the songs last this long... and it's a pain in the ass that we still have to sing them. ✨

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## Crack Control

### Contras, cocaine and the CIA.

**This film tells** a story of government-sponsored urban decay, of the CIA helping stoke the 1980s crack epidemic by protecting high-level dealers who flooded the market with cheap coke in order to fund Nicaraguan contras.

It was done through people like Nicaraguan cocaine magnate Oscar Danilo Blandón, who sold to “Freeway” Rick Ross (the original dealer, not the rapper who took his name), the man widely blamed for bringing crack to LA. Although it may sound like a conspiracy theorist’s wet dream—or nightmare—it’s true, and there are government documents to prove it.

Emmy Award-winning filmmaker Marc Levin chronicles the whole sordid tale, using tapes of government officials talking openly about the scandal. The film also uses police footage from the 1980s, bringing the devastation of crack culture to light.

### Freeway: Crack in the System

Directed by  
Marc Levin  
(Blowback Productions/Al Jazeera America)

The documentary centers on Ross, a young man from South-Central LA who didn’t smoke crack, instead working to expand his business—sometimes selling \$1 million worth of coke in a single day. Ross’s success caught Blandón’s eye, and the Nicaraguan began funneling cocaine through Ross into the hands of the urban poor. Little did Ross know, but he was helping fund the contras—a right-wing guerrilla army that the Reagan administration had vowed to support, despite a measure by Congress intended to cut off its funds.

The War on Drugs means harsh sentences for dealers (at least those without government protection). Ross eventually got busted, but he managed to shorten his life sentence to 20 years by learning to read and keeping his nose in law books in prison. He’s now a free man with a new mission: to improve the areas of LA he helped to debase. He also speaks to students about steering clear of the choices he made. *Claire Scimeca*

## MUSIC RECOMMENDATIONS



**Ides of Gemini**  
*Old World New Wave*  
(Neurot)

➤ A minimalist’s fever dream, *Old World New Wave* is the sound of heavy metal stripped nude and sent on a forced march. Drums pound like a relentless, steady metronome; vocals soar sternly, mournfully, mediocally. It’s what’s missing or restrained that’s so devastating: Melted down

to its basic elements, the steel reconfigures into something raw, strange, ceremonial—as much Siouxsie as Ozzy. Metallica shrunk the gap between metal and post-punk when they covered Killing Joke; Ides of Gemini are carrying that torch now, transcending genres, even centuries. *Curran Reynolds*



**Wayne Kramer & the Lexington Arts Ensemble**  
*Lexington*  
(Industrial Amusement)

➤ Guitarist/composer Wayne Kramer naturally channels both rock and jazz without being “fusion.” This score reflects the over-representation in the facility of musicians of both genres (including Kramer himself). The tight/loose grooves, carefully controlled consonances and

dissonances, and superior musicianship deserve praise from any musical camp that values excellence. Kramer’s guitar playing is marked by invention, muscle and clarity. Special respect to the late trumpeter/co-composer Charles Moore, in one of the final recordings of his singular career. *Michael Simmons*



**Swans**  
*To Be Kind*  
(Young God)

➤ Produced by chief visionary Michael Gira, Swans’ third studio album since their yank from the crypt in 2010 after a 14-year hiatus is a double-CD’s worth of new material (122 bleeding minutes long) that plays out like an intuitive, fearless fuck-it odyssey of pure sonic glory. *To Be Kind* is loaded

with Swans’ infamously harsh and hypnotic massed-guitar feedback and percussive brain-and-body burn. Songs of nuanced, textured lyricism are a yin-yang counterweight to the band’s hellacious howls. They play dulcimers and vibraphones on this thing—you gotta be kind to cruel. *John Payne*



**Electric Wizard**  
*Time to Die*  
(Spinefarm Records)

➤ English doom-dealers Electric Wizard get high on hate and dirt weed and go on a killing spree. From the 11-minute “Incense for the Damned” to the bleary, organ-drenched “Saturn Dethroned,” guitarists Jus Oborn and Liz Buckingham revive the red-eyed atmosphere of early Wizard

masterpieces like *Dopethrone* and *Come My Fanatics* with drummer Mark Greening, who left in ’02—and has since split again. Even the most discerning riff-worshipper will find plenty to genuflect to here, especially on the title track and the blackout epic “Funeral of Your Mind.” *J. Bennett*

## GAME RECOMMENDATIONS



**Hyrule Warriors**  
*Omega Force/Team Ninja*  
(Wii U)

➤ The Dynasty Warriors series trades in its samurai armor for a tunic in this unexpected Legend of Zelda hack-and-slasher. Thirteen characters from Zelda’s extensive lore can be customized and leveled up by grinding it out on the battlefield for rupees and craftable materials. Adventure mode

brings 8-bit to HD using the NES world map as the hub for more Warriors-style challenges. Zelda purists may scoff at the absence of puzzles and dungeons, but fans too high to master a new wind instrument will find decimating thousands of onscreen enemies quite enjoyable. *Tyler Merfeld*

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**Super Lemon Haze Chiffon Pie**

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There's nothing better than opening up a bag of Super Lemon Haze right after you get it and giving your nostrils a whiff of the goodness you're in for. The citrusy undertones and green-machine bite do wonders for the palate. And the effects ... well, there's a reason it's a crowd favorite.

This heavenly chiffon pie will have similar results, and it tastes even better than it smells! The weed-infused gingersnap crust is spicy and plays off the lemon flavor of the smooth, creamy filling. It's also easier to make than you might think. This classic dessert calls for separated egg yolks and a little elbow grease, but you'll forget any toiling once that first bite melts in your mouth. And the psychoactive effects will mean you've been well rewarded for your efforts.

If Super Lemon Haze isn't available at your local pot stop, not to worry: Any good green will do, and this recipe packs all the lemony punch you'll need for making the best mouthwatering pie either side of the Rockies. *Mary Ought Six*

## SUPER LEMON HAZE CHIFFON PIE

**Crust**

5½ *tblsp.* unsalted butter  
5 *grams* ground cannabis  
1¼ *cups* crushed gingersnap cookies  
3 *tblsp.* granulated sugar  
1 *pinch* salt

**Filling**

¼ *cup* ice-cold water  
1 *package* unflavored powdered gelatin  
3 *tsp.* finely grated lemon zest  
¾ *cup* granulated sugar  
¾ *cup* fresh-squeezed lemon juice (about four lemons)  
1 *pinch* salt  
1¼ *cups* heavy cream  
¼ *cup* powdered sugar  
4 *egg* yolks

separate amounts for the filling and crust) in a bowl until the cookie crumbs are well coated. Press the yummy moistened crumbs evenly into a 9-inch pie pan, all the way up the sides. (Make sure they're even—this is your medicated part!) Bake for six minutes and set aside.

Pour the ice-cold water into a small bowl and add the gelatin. Let thicken for 15 minutes. Lightly beat the egg yolks and add them in, along with granulated sugar, lemon zest and a pinch of salt. Place over medium heat and just keep stirring until the mix is smooth and thick, never letting it boil (around seven minutes). Promptly set the saucepan in an ice bath and let cool.

Start by making your cannabutter: In a double boiler, melt the unsalted butter over low heat and stir in the ground cannabis. Continue cooking on low for 35 to 45 minutes, stirring occasionally and being careful not to burn the green matter. (Pull it at the first whiff of toastiness.) Squeeze all the butter out of the weed through a cheesecloth.

Preheat the oven to 350°F. Mix the cannabutter, salt, crushed gingersnap cookies and granulated sugar (note the

In a larger bowl, whip the confectioner's sugar and heavy cream together, adding the sugar in two to three parts, until it forms fluffy peaks. Fold the whipped cream into the cooled lemon filling until evenly mixed. Next, put the filling in the crust, make the top look pretty, then stick it in the fridge for around four hours—and voilà! *Stones 6 to 8.*

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MARKET ANALYSIS

Prices by the ounce

After across-the-board gains last month, all indices finished February below their previous month's average. The US Price Index experienced the biggest drop, falling \$20 to a new low of \$283 (\$1 less than its previous low, established in July 2014). Cheese joined the month's most-submitted strains for the first time since April 2014.

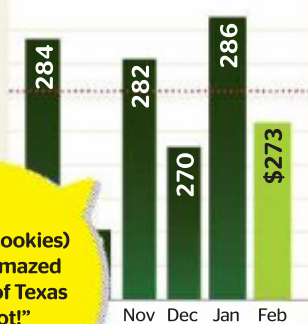
**US Price Index**  
 YTD Average: \$293



**Kind Index**  
 YTD Average: \$369



**Mids Index**  
 YTD Average: \$280



**Schwag Index**  
 YTD Average: \$101



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Arkansas	Little Rock	Sensi Star	380
California	Los Angeles San Francisco	Sweet Tooth Deadhead OG	310 325
Colorado	Denver Pueblo	Sour Diesel Golden Goat	280 260
Delaware	Newark	Jack Herer	370
Florida	Miami Orlando	Guava Chem Bubba Kush	350 300
Georgia	Atlanta Savannah	Purps Blue Dream	250 290
Illinois	Chicago	Skywalker OG	320
Iowa	Sioux City	White Widow	320
Louisiana	Metairie	Sweet Tooth	280
Maine	Bangor	Northern Lights x Cheese	200
Maryland	Baltimore	Girl Scout Cookies	350
Massachusetts	Boston Taunton	Trainwreck Strawberry Cough	300 220
Minnesota	Minneapolis	Lemon Haze	300
Mississippi	Philadelphia	Pineapple Kush	300
Missouri	Jefferson City	Tangerine Kush	280
Montana	Bozeman	Blue Dream	250
New Hampshire	Manchester	Sweet Tooth	275
New Jersey	Jersey City	Strawberry Cough	380
New Mexico	Santa Fe	OG Kush	350
New York	New York	Guava Chem	400
Ohio	Dayton Lancaster	Cheese Blue Dream	325 250
Oregon	Portland	Blackberry Kush	180
Pennsylvania	Philadelphia	Trainwreck	350
Rhode Island	Providence	Capleton	350
Texas	Dallas	Girl Scout Cookies	240
Vermont	Burlington	Sour Diesel	320
Washington	Mukilteo	Girl Scout Cookies	250
Wyoming	Alpine	Opium	300

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[nectarcollector.org](http://nectarcollector.org)

We first noticed this innovative way to consume hash oil at one of our Cannabis Cups and immediately fell in love. The Nectar Collector is an ingenious water-cooled and spill-proof vertical vaporizer that allows you to dab as big or as small as you wanna go. It's simple to use—as the Nectar Collector tagline says, “Heat the tip, dip and sip”—and all of their products are proudly made in the USA.

### 2 Dab Wiser

\$140

[dabwiser.com](http://dabwiser.com)

Purchasing a new nail for your rig every time you experience a problem retaining heat can be an expensive and annoying proposition. That's why Dabwiser has developed The Oracle, a titanium oil-vaporizer and carb-cap system with a replaceable pan. The dabber even doubles as the carb cap, keeping the terpene-rich hash-oil vapor in your lungs instead of lost to the air.

### 3 Root Down

\$8.99

[cleanrootscorp.com](http://cleanrootscorp.com)

Letting your grow pots sit in the stagnant runoff water that fills your trays can cause all sorts of problems, from root rot to salt buildup. The new Clean Roots Platforms allow you to avoid any of these potential hassles by leaving your pots resting a comfortable 2 inches above the trays. This simple yet effective solution currently comes in 15-inch trays, with 8-inch versions on the way.

### 4 Future Pen

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[apexpen.com](http://apexpen.com)

Searching for a vaporizer pen that works great for liquid oil, solid oil and flowers? Look no further than the new Apex Vape, a next-level pen that can handle big puffs. The larger battery lasts up to three times longer than other pens, and the chamber heats and cools faster. As an added bonus, the glass dome lets you see the size of your hits as you begin to inhale, and the pen comes in a variety of five different finishes.



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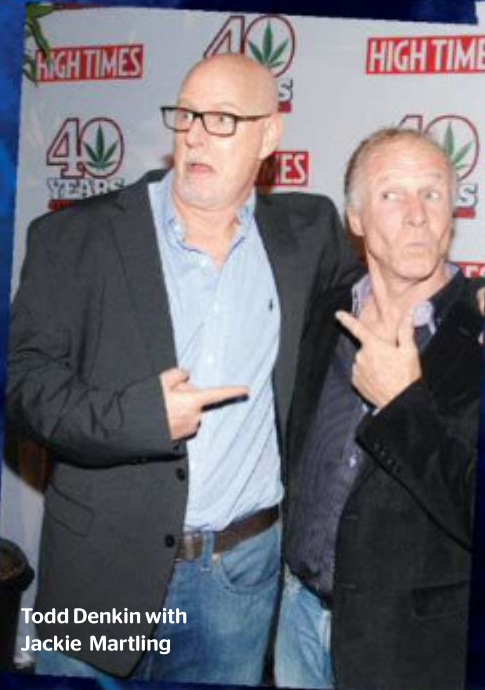
Rob Cantrell beamed.



High Maintenance's Ben Sinclair, caught with pot.



Natasha King bent minds with her moves.



Todd Denkin with Jackie Martling



Award-winner Charlo Greene

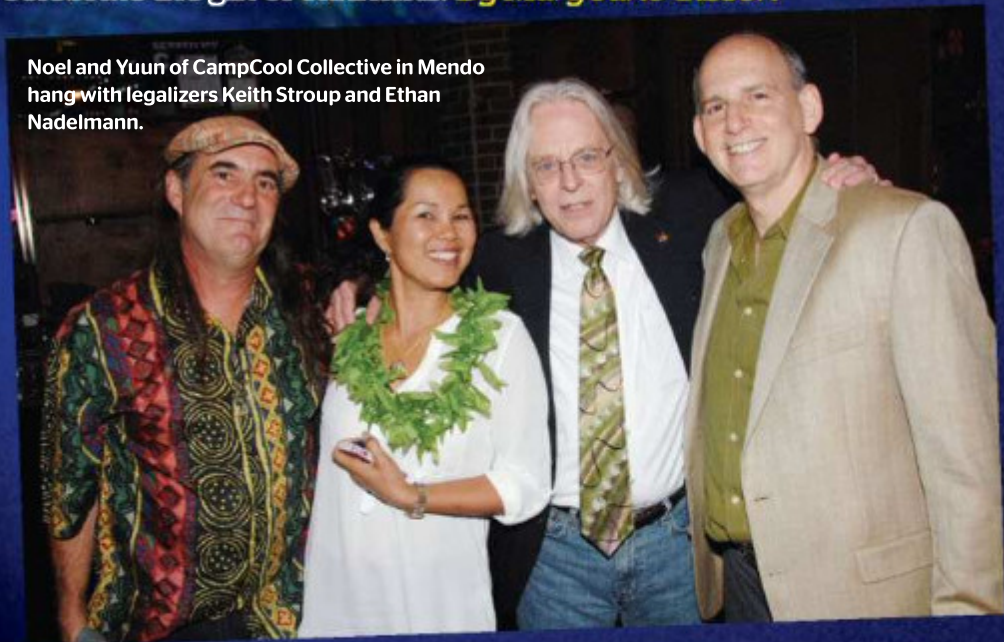


Chelsea and Yeni

# A Night We'll Never Forget

High Times turned the big 4-0 this year. To mark the momentous occasion, we threw a giant party for all our friends to celebrate the gift of cannabis! *By Mary Jane Gibson*

**A** smoke-tastic celebration brought hundreds of honored guests, freedom fighters and celebrities together with High Times staff and alumni to toast the world's number-one marijuana magazine and its 40 years of existence. The cannabis-loving crowd assembled at a rooftop bar on New York City's famed Lower East Side to ring in High Times' fifth decade leading the charge toward full pot legalization in America. Venue staffers attempting to quell the abundant weed smoking were politely rebuffed as guests freely shared their stash and partook of the bounty of joints that circulated throughout the outdoor smoking area on a crystal-clear October night.



Noel and Yuun of CampCool Collective in Mendocino County hang with legalizers Keith Stroup and Ethan Nadelmann.



# UPLINE

In this industry, the people who make stuff fall into one of two camps. They're either manufacturers (like 420 Science and Grav Labs). Or they're artists (like Salt, Slinger, and the man who started it all, Bob Snodgrass).

Some of these artists create elaborate glass pieces that sell for thousands of dollars.

Dave, the founder of Grav Labs, has always been a fan of Micah Evans (aka ME).

Micah is known for his elaborate work that blends art, the science of fluid dynamics, and a technical proficiency unmatched by other glassblowers.

Dave's not the type to spend hundreds of dollars on a pipe (let alone thousands), so he never bought any of Micah's pieces.

Until he saw the Upline.

This piece spoke to Dave. It's classic Micah Evans:

**Art** - The aesthetic is unlike any other pipe ever made. It's balanced, it's beautiful, and it's clean.

**Science** - The "spine" acts as a percolation device and creates a wonderful chugging sound that is deep and rich. Much like a Harley Davidson, the sound of this pipe is deeply satisfying and just feels right.

**Technical Proficiency** - This is not an easy piece to create. The multiple segments of the spine are made to tight specifications.

So Dave pulled the trigger and bought the Upline because he loved it so much.

Years later, Grav was growing rapidly and Dave was developing new pieces and collaborating with glassblowers to bring their artistic pipes to a wider market.

He reached out to Micah and asked about licensing the design. They worked together to create a streamlined version of the Upline for Grav Labs.

This piece is one of the many reasons we admire Dave and what he's built at Grav.

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420 SCIENCE

Power couple  
Jonathan Bricklin and  
Susan Sarandon



Upon arrival, guests were greeted by the lovely Sapphire Jones, who adorned them with a pot-leaf lei and ushered them upstairs. VIPs including Susan Sarandon and her partner Jonathan Bricklin, the cast of *High Maintenance*, NYC's own Weed Fairy, and former KTVA reporter Charlo ("Fuck it, I quit") Greene were met by *HT*'s Bobby Black for a photo op and short interview on the green carpet, before being handed the night's signature cocktail: "Jamaican Me Crazy," from *The High Times Official Cannabis Cookbook*. Author Elise McDonough was on hand to approve the mixologist's work, which was topped with a bona fide ganja garnish.

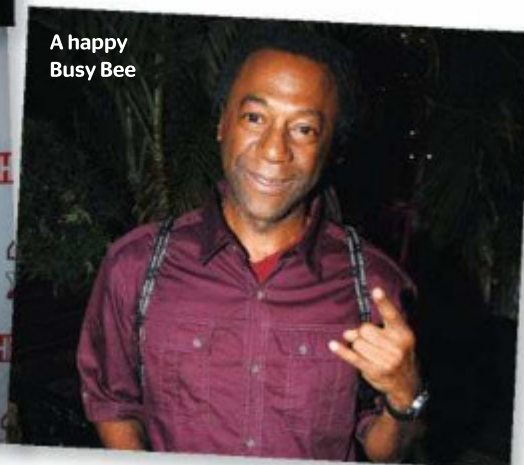
Lei diva  
Sapphire  
Jones



DNA Genetics' D n' A



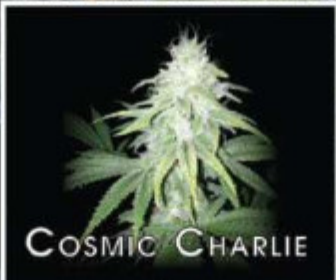
A happy  
Busy Bee



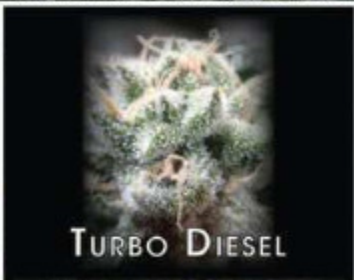
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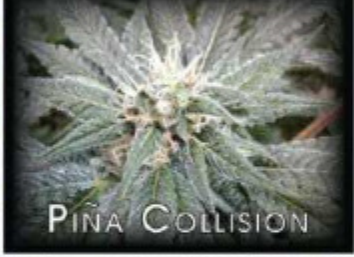
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Nick and Julie in the weed photo booth.



The pot-leaf piñata was filled with treats.

Much to the attendees' delight, a photo booth delivered personal party pix in front of a marijuana-laden background, while a stunning pot-leaf piñata sparkled high above the dance floor, prompting many to wonder what exactly was inside. Nick and Julie of Confetti Systems, the piñata's creators, were on hand to watch their handiwork get whacked into a shower of emerald glitter, paper and all sorts of delicious treats. Suffice it to say, the assembled crowd dove into the remnants of the party favor with whoops and giggles, and when they emerged with their booty, the sweet smell on the smoking terrace

got a whole lot ... sweeter.

Pop-up performances added sizzle to the party, with a trippy LED fan dance by Claire De Luxe setting the tone. Fabulous folks including Jackie "the Jokeman" Martling, NORML's Keith Stroup, and HT's own Chris Simunek, Danny Danko and Rick Cusick stood back to take it all in, as partygoers lit up freely and DJ Greg Casius turned it up on the dance floor. Ben Sinclair, co-creator and star of *High Maintenance*, said to *New York* magazine of the security guards' attempts to stop people from partaking: "It's like asking a cat not to purr. It's gonna purr, baby."

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- + Brew 1 cup of freshly ground Bulletproof® Coffee beans
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- + Mix it all in a blender for 20-30 seconds until it is frothy like a foamy latte

*Enjoy!*



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Ben Sinclair, co-creator and star of *High Maintenance*, said of the security guards' attempts to stop people from partaking: "It's like asking a cat not to purr. It's gonna purr, baby."

Another spectacular 40th-anniversary element was the three-tiered cake, created by Slaytanicakes and sliced up by Bobby Black and his partner in crime, April Black, who crowed, "Green velvet! My favorite!" as she handed out pieces faster than Bobby could cut them. The venue's kitchen was hard-pressed to keep up with the need for snacks, so a stack of pizzas was ordered up to satiate revelers, including editor-in-chief Dan Skye. When asked for his impression of the party, Skye said: "There's no better party than a *High Times* party, when hordes show up to celebrate the gift of cannabis!"

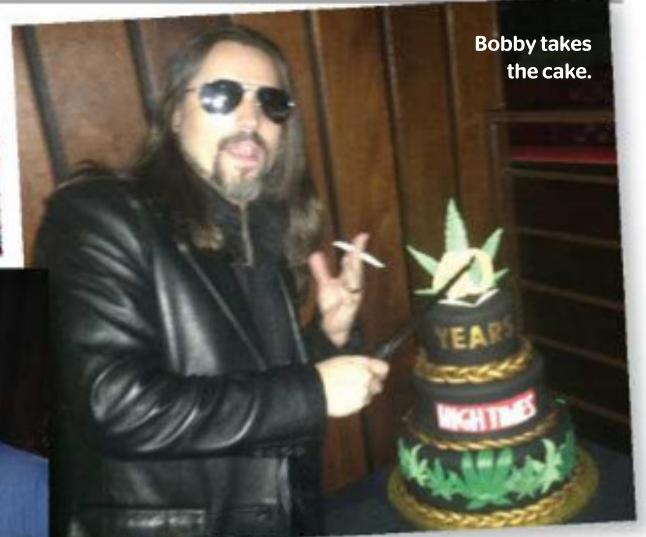
All in all, it was a night we'll never forget. A huge thanks to all the wonderful people who came out to celebrate 40 years—and still growing—of *High Times*. ✨



Bud babes



Katnip and Gerbz



Bobby takes the cake.



Our hero!



Cool cats Theo and Lourdes



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We're happy to help break that trend with the Helix Pen from Grav Labs. Based on the same battery platform as many other pens, but with a custom Helix Mouthpiece that brings a new vaping experience to your lucky hands. The Helix attachment features 3 micro holes that swirl the smoke, cooling it, and giving you a nice smooth hit. This pen also features an innovative tapered bowl design to get every last drop.



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# 2015

# Report

Successful hydroponic marijuana farming requires an understanding of basic hydro principles and technology. Properly managing essential factors will lead to bigger, better harvests in a shorter time.

*By Danny Danko and Erik Biksa*



Automated hydroponic gardens are capable of producing pounds of pot efficiently.

### **Hydro Basics**

Hydroponics is the art of growing plants without soil. A nutrient solution made up of water and plant foods is mixed in a reservoir and typically fed to the roots several times a day. The roots sit in an inert medium such as rockwool, perlite or grow rocks (also known as hydrocorn, puffed rock or expanded clay pellets). Some hydroponic systems, such as deep water culture (DWC), employ no medium at all; the roots simply dangle in an oxygenated nutrient solution and take up the liquid and foods as needed.

### **Why Go Hydro?**

The advantages of hydroponics over hand-watering plants in a soilless mix are many. Plants grow faster when their roots aren't encumbered by thick, clumpy soil mix. With the ability to take in more oxygen through their roots, their explosive growth rates far exceed what can be accomplished in buckets full of dirt. Also, there is no bulky spent soil to get rid of, which can be advantageous in urban environments or warehouse grows, for which literally tons of soil are needed.

Another huge reason that people use hydroponics is that there's much less chance of pest infestations. The lab-like conditions necessary for hydro don't supply many places for pests to hide, thrive and reproduce. Also, many organic soil-based mediums and nutrients attract bugs with their smell of compost and rot. Introducing fish, seaweed or guanos will certainly bring more pest issues.



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Ebb-and-flow trays periodically flood with nutrient solution and then drain back into reservoirs.

## Hydro Systems

### Nutrient Film Technique (NFT)

NFT uses round or squared tubes to deliver a constant flow of shallow nutrient solution. The plant roots sit in a trench and take up what they need, eventually forming a mat along the bottom of the tubes. It's important to ensure that the water is well oxygenated when using NFT, because the roots dangle down into the solution.

### Ebb-and-Flow or Flood-and-Drain

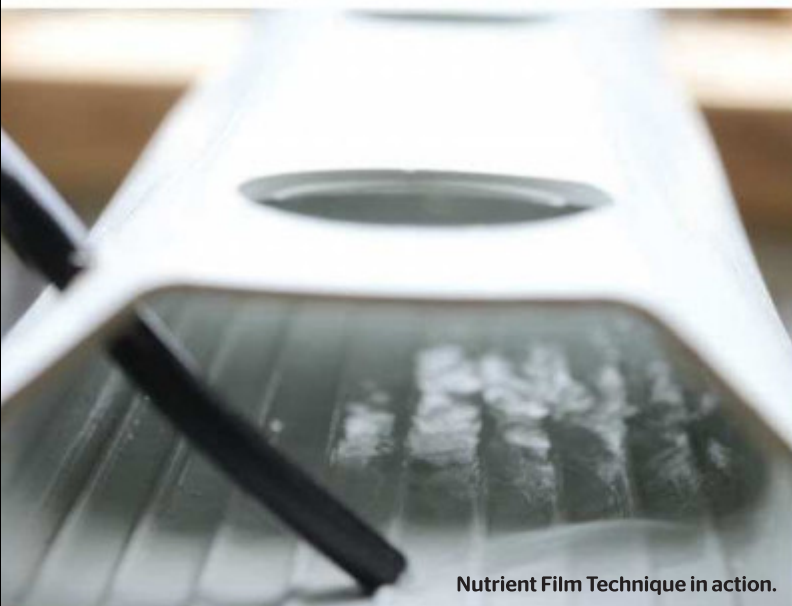
These systems use trays to contain plants in a growing medium. Nutrient solution is periodically pumped into the trays from a reservoir and then drains back to the reservoir for the next feeding cycle, allowing roots to take in plenty of oxygen between waterings without completely drying out.

### Deep Water Culture (DWC)

In DWC systems, each plant gets its own bucket, typically 5 gallons or larger. The plants are secured individually in mesh pots cut into the top of the buckets, and the roots dangle down into an oxygenated nutrient solution. Sometimes the buckets are connected to a larger reservoir, but they can also operate as stand-alone systems.

### Aeroponics

Plants grown aeroponically are fed a nutrient solution in the form of a mist aimed at the roots. The solution is fed via a pump through misters that bathe roots constantly, allowing them to absorb food while also taking in abundant amounts of oxygen. When aeroponic methods are properly dialed in, plants grow incredibly fast and big.



Nutrient Film Technique in action.

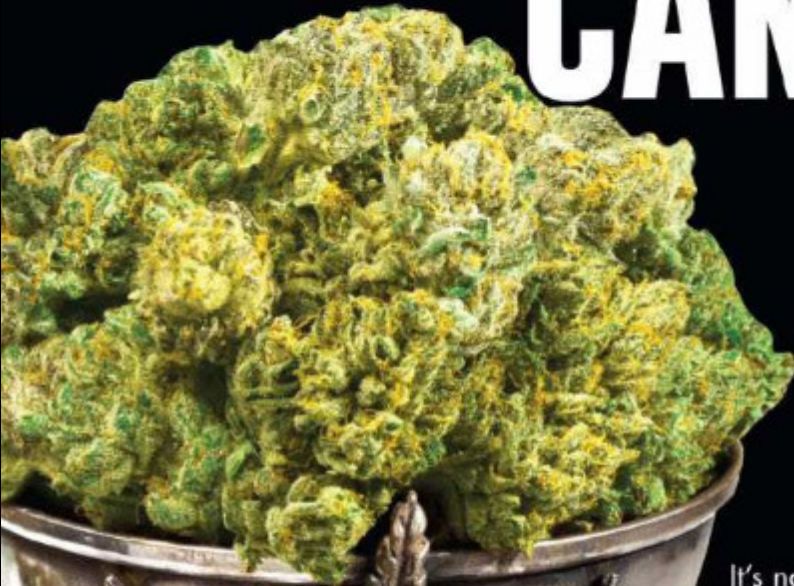


DWC features individual buckets.



Roots in an aeroponic system.

# CANNABIS CUP WINNING NUTRIENTS



It's not that we enjoy bragging, however the fact of the matter is there are no awards or categories for best nutrient companies at the major growing competitions. And because there's no award, and it's something we are proud of, we want to share this little-known fact with you...

Advanced Nutrients has been used to repeatedly win every single major grow competition in the world, and in all categories. Best Hybrid, Indica, and Sativa. Best Hash and Concentrates. Plus, seed companies Barney's, Big Buddha, and Rare Dankness (to name just a few) use Advanced Nutrients to grow their award-winning seed crops.

## Here's a list of some of our wins:

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- High Times US Cannabis Cup Seattle
- Kush Cup
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- Hempcon
- Highway 420 Anti-Prohibition Rally
- Expocannabis Sur
- Cannabizz
- Nimbin MardiGrass
- Global Marijuana March
- Emerald Empire Hempfest
- Olympia Hempfest
- Hanfparade
- Seattle Hempfest
- Cannatrade
- Expogrow
- Boston Freedom Rally
- Cultiva Hanfmesse
- Cannafest
- Treating Yourself Expo
- Secret Cup
- Growmed
- 707 Cup
- 16th Annual Medical Marijuana Benefit Concert

**"I would not be where I am today—as far as quality—if it wouldn't have been for Advanced—honestly"**

— Mr. Spliff of TGA Seeds, High Times Medical Cannabis Cup WINNERS

**"I tried many other brands and they never won a cup for me until I started using Advanced Nutrients. Now I rely on their entire line to win cup after cup"**

— Rocky, Champs Cup WINNER

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See not one, not two, not three, but FOUR different Cannabis Cup WINNERS praise Advanced Nutrients and share their favorite products in this "behind the scenes" video from Los Angeles High Times Medical Cup 2013:

[ChampionGrowersUseAdvanced.com](http://ChampionGrowersUseAdvanced.com)

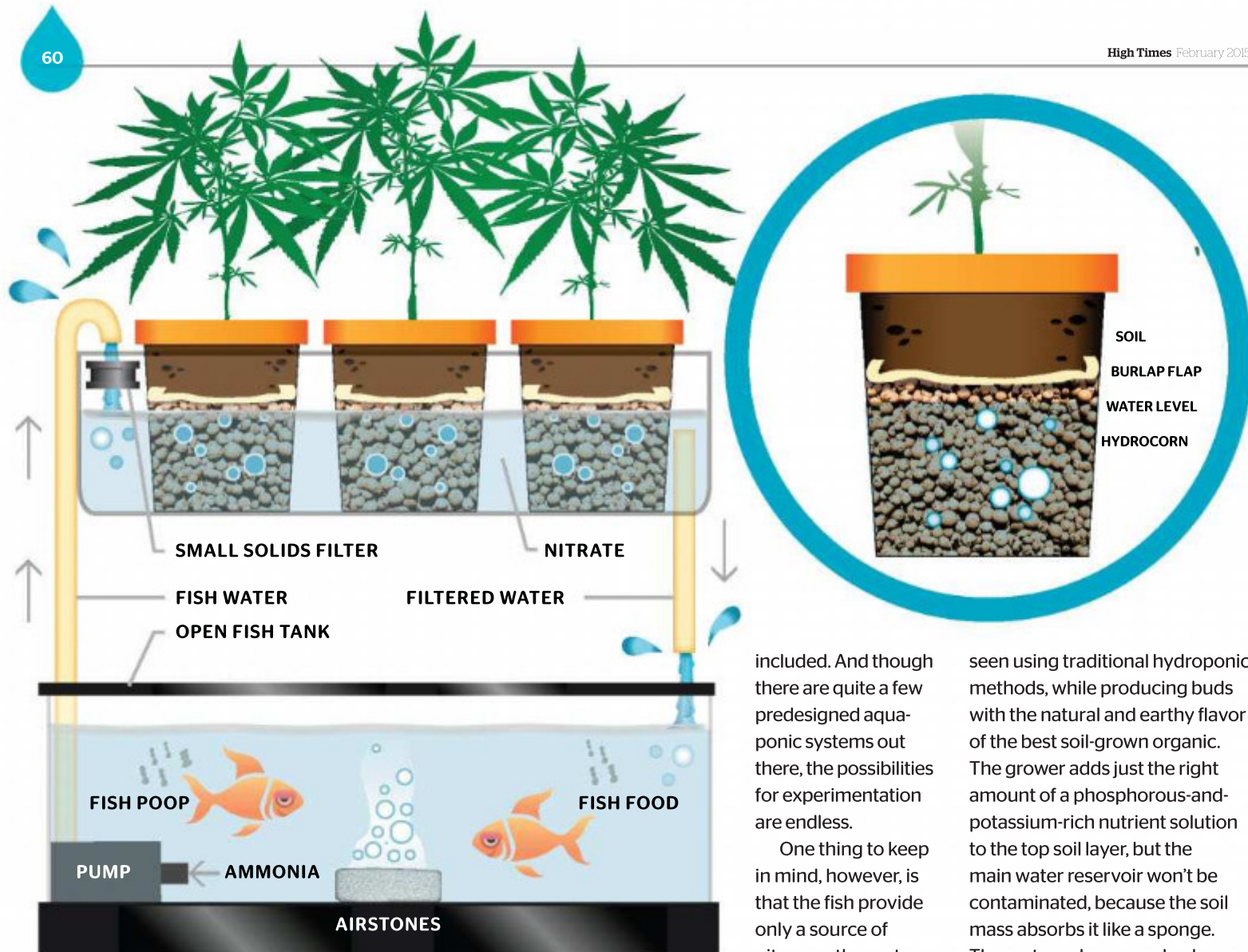


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## Aquaponics:

### Let Fish Do the Fertilizing

Aquaponics is an interesting method of soilless cultivation being used by urban-farming movements and some developing nations to produce crops—and fish—with just a fraction of the water needed in conventional farming.

Aquaponics is a combination of *aquaculture* and *hydroponics* in a closed system: The fish defecate in the water in one tank, which

then gets regularly circulated through the hydroponic medium of the plants, whose roots extract the nutrients they need and clean the water for the fish. Beneficial bacteria play a central role in this system, helping turn ammonia-heavy fish waste into useful nitrates for your plants. All you have to do is sit back and feed the fish, and a “mature” system (i.e., one with enough working bacteria) will provide the nutrients necessary for the flourishing growth of many plants, cannabis

included. And though there are quite a few predesigned aquaponic systems out there, the possibilities for experimentation are endless. One thing to keep in mind, however, is that the fish provide only a source of nitrogen; the system on its own is deficient in iron, magnesium, sulfate, phosphorus and potassium. Iron DTPA chelate and magnesium sulfate can be added to the reservoir with no negative effects to the fish, but the amount of phosphorous or potassium desired for cannabis growth would be toxic to them.

So how have cannabis growers gotten around this? By using a system called *dual root zoning* (see the illustration), in which vegetative growth can match—and often surpass—even the growth

seen using traditional hydroponic methods, while producing buds with the natural and earthy flavor of the best soil-grown organic. The grower adds just the right amount of a phosphorous-and-potassium-rich nutrient solution to the top soil layer, but the main water reservoir won't be contaminated, because the soil mass absorbs it like a sponge. The system also uses a burlap flap that the plants' roots can grow through to separate the layers of soil and hydrocorn. As a result, the root-ball can absorb all the micro- and macronutrients it needs without those nutes circulating through the system and poisoning the fish.

This does seem like a labor-intensive method, but in our rapidly changing and precarious world of water and energy shortages, resource-saving setups like this are just what the cannabis industry needs to be sustainable.

Sirius J

CHARLES WALLACE



### The Octopot

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This is a hybrid system, meaning that it works with hydro or soil. A wicking technology pulls water through the roots from the reservoir below, while still allowing them to get plenty of oxygen. You'll never suffer from root rot again if you choose the Octopot as your growing system. You can walk away from your plants for up to 10 days (though we would never recommend that). Plus you don't need any pumps or tubing that can end up getting clogged, usually with catastrophic results.





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## Hydro Mediums

### Grow Rocks/Hydroton/Expanded Clay Pellets

Clay pellets are heated and then expand, forming what look like solid rocks that actually contain many crevices and air holes for oxygen to circulate. One advantage to pellets or grow rocks is that they can be reused many times, as long as they're properly cleaned between cycles.

### Rockwool

Rockwool is made from rock that is heated and spun into long fibers that resemble the insulation used between walls in buildings. It has the advantage of holding lots of water while also allowing air to reach the roots. Rockwool can be an irritant to the skin and lungs, so always get it wet before working with it.

### Perlite and Vermiculite

Perlite and vermiculite are two forms of heated minerals that expand into small, porous pebbles. They are typically used to lighten soilless mixes, but they can also be used alone as a hydroponic medium. Both exhibit good water retention and also have "wicking" properties that draw the nutrient solution upwards.

### Coir/Coco Peat

Made from the fibers on the exterior of a coconut shell, coco peat is a natural byproduct of the coconut industry. Many hydroponic growers enjoy using this medium over rockwool due to its sustainability as well as its water-retention capacity. However, this medium requires a unique and specific type of nutrient solution made especially for use with coco peat.

# 5 THE HABITS OF HIGHLY EFFECTIVE HYDRO GROWERS

By Erik Biksa



Cleanliness is important to hydro success.

**1 Work smarter, not harder:** Hydro allows growers not only to enjoy faster growth rates when it's done right, but also to spend less time doing it. A stable hydroponic solution and a fresh reservoir top-up via a float valve is something anyone can master. This allows a single grower to yield much larger crops—because he (or she) can afford the time in other areas required for successful growing, such as pruning and harvesting.

**2 Stay consistent:** Cannabis plants have an amazing ability to adapt to a variety of situations, but they often produce best when given a consistent and stable environment. It's okay, for example, to have differences in temperature between day and night—but a stable pH and a steady EC (or ppm level) in nutrient formulations made specifically for hydroponics and applied at the same daily intervals, or continuously, will result in superior plants.

**3 Be slow to change:** Hydroponic systems can be incredibly responsive—much like a performance racecar's acceleration—when growers make changes to the feeding program. You can see changes in hours instead of days when it comes to hydro, because nothing gets in the way of the roots absorbing supercharged nutrient solutions. However, this also means that you shouldn't make drastic changes, but rather gradual ones, so as not to lose control and crash and burn (or not burn, as the case may be, because your buds got overfertilized and won't smoke right).

**4 Stay chill:** Take advantage of the natural laws of thermodynamics. In simple terms, you can run a slightly warmer growroom, which can result in big power savings from reduced cooling when you use water-culture methods, and cool the nutrient solution rather than the air.

Essentially, the plants' response to temperature has more to do with their internal temps and less to do with the temperature of the air. So a plant filled with water that was supplied at 68°F at the roots will stay cooler even when surrounded by warmer air. And when you add CO<sub>2</sub> to a warmer environment, it's like nitrous at a drag race—stand back and watch them go super-fast!

**5 Keep it clean:** For professional medical producers and home growers alike, the "clean" factor of hydroponics is a big advantage. If you use natural principles and inert materials to cultivate plants, as in pure water-culture methods, your finished buds are far more likely to be free of any potential contaminants. And the same is true for the surrounding area, since hydro growing means fewer occurrences of problems like insects or diseases that may surface in "dirty" growing environments.



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## Hydroponics AND Sustainability

We live in an age of information. While this is undoubtedly a good thing, it can also mean that a lot of confusion and even flat-out misinformation gets propagated. The age-old hydro-versus-organics debate is a great example.

It would seem that only a fool would argue against organics. After all, that's what people pay a premium for—whether at the grocery store or the dispensary, or even at your favorite grow-supply shop. For whatever reason, most of us tend to look at organics in a more positive light than synthetics. Fair enough—but there's more to the story that we need to consider, and that concerns sustainability.

So let's say that, being into tasty and clean-burning buds and having a sense of value for the earth and its ecosystems, you opt for a bag of peat-based organic growing mix and a couple bottles of your favorite organic nutrients. Feeling good about your choice? Wait a sec ....

First, almost all of the cost associated with peat- or even coir-based grow mix is actually related to shipping bulk materials. Peat is super-cheap at the source, because the producers simply tear it from the earth (even though it can take tens of thousands of years to accumulate

A flood and drain table nourishes this luscious bud.



naturally in a bog). So why does it cost so much? Because diesel fuel isn't cheap. Those bulk materials travel long distances before they're used in most regions.

Now consider the carbon footprint: Not only have you added more carbon to our atmosphere from that petroleum-based global bulk shipping, but you also helped strip away a part of a living

system here on our planet. And what were you planning to do with it once your harvest was done? "Throw it away and start a new crop with fresh bags" is the most common answer.

The same goes for "specialty" bottled organic fertilizers. While these can produce great yields and tasty medicine, they involve shipping a lot of water around and are manufactured, at least in part, with simple dry goods, most of which you can source yourself locally.

Here's the deal with hydro: It can be more sustainable as well as more productive. But before we even go there, we need to get something else out of the way: Using hydroponic fertilizers or methods does not mean employing harmful PGRs (plant-growth regulators)—a common bit of misinformation. Synthetic nutrients are super-clean basic elements—some cleaner than others, with many being food- or even laboratory-grade. For example, one of the most common ingredients is monopotassium phosphate (MKP). This has been used as a common food additive for years and years, and all it consists of is potassium, hydrogen, phosphorous and oxygen—the same as you'll find in a bottle of organic nutes, with one important

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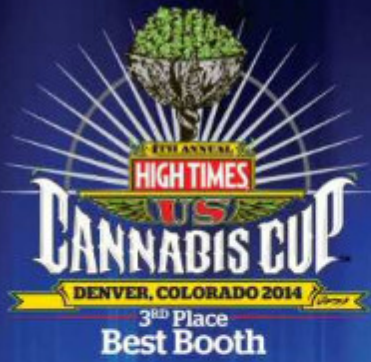
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exception: It's in a stable form that your plants can take up right away for growth, and that won't spoil or sour easily.

At the heart of hydro growing in its truest form is water culture (in Greek, hydroponics means "working with water"). In this method, there is no growing medium at all—or, at the most, a very small amount of a reusable material like grow rocks, which are used simply to anchor the larger plants. The roots of the crops are bare and kept from light and drafts—essentially, they have their own mini-climate that the grower can control.

In the super-oxygenated environment that's optimal for roots, plants use nutrients more efficiently when they're supplied in clean and available forms and in specialty hydroponic formulations. Also, oxygenated roots enable plants to grow bigger, faster and stronger with lower fertilizer levels. This means that 4-liter nutrient jug will last four times as long now—and that's four times less fuel in the air than your bottle of organic nutes.

What about all that plastic? Professionally manufactured hydroponic systems are made from materials that last; they can be scrubbed clean with bleach and water and reused again—often on the same day as harvest, because



Oxygenated root zones promote healthy growth.

prepping a hydro system is faster and easier, in most cases, than getting a soil-based system ready to grow again. If you use grow rocks, you don't need many, because they too can be sterilized, rinsed clean and reused.

Hydroponics has many other advantages where sustainability is concerned. For example, systems and materials can

be and are made from recycled plastics. A covered recirculating system uses considerably less water than traditional soil- or soilless-grown crops, because all of that water gets absorbed by roots—very little is lost to the air or as run-off. A well-managed or automated hydroponic reservoir doesn't need to be dumped, either—with proper measurements and formulas, it can operate for the entire duration of the crop. And if your grow-room gets too hot, you may not need that big energy-hungry air conditioner—a small one-quarter-horsepower water chiller cools the nutrient solution so that your crop can thrive in warmer temperatures, so long as the roots are kept at a perfect 68°F to 72°F.

There's much more to the story than what we've touched on here, but it's best for you to find out for yourself by dedicating a crop to hydro and experiencing the difference. While there's no doubt about the great quality, heavy yields and fast growth rates that can be achieved using hydroponics, it appears that there are also important environmental benefits to this ancient and yet very modern growing practice to be discovered by many of today's savvy medical cannabis cultivators.



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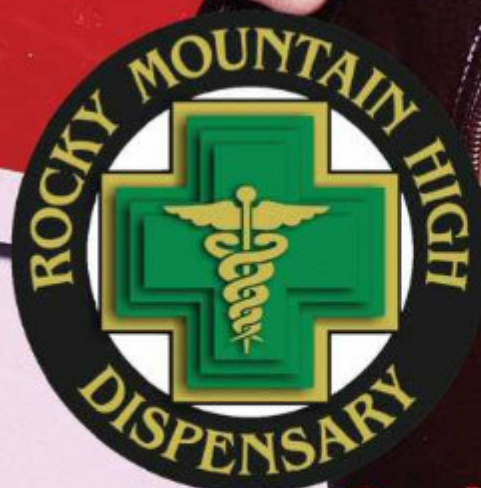
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### The Future Is Here: Growroom and Reservoir Control

Automation technology is growing by leaps and bounds—just check out the home automation section at your local building center for proof. For cannabis growers, switches that can turn things on and off independently when you need them to are invaluable tools. A light timer is a perfect example.

We've arrived at the dawn of AI (artificial intelligence) in the growroom. One such example is Grohaus Automation's hydroponic reservoir control. Sure, the device can inject pH Up or Down and any ratio of nutrients and supplements via touch-screen programming—that's all good, and save for the touch screen, these are already well-established technologies for sophisticated hydro growers.

Where the real quantum leap comes in has to do with the fact that the control *thinks before acting*. Seriously—the program watches your reservoir and the conditions (it can be set for higher or lower flow rates and aeration levels) and, once it learns the rhythms of change, will execute real-time adjustments after making intelligent assessments. For example, instead of adding pH Down the second the res value changes, it might wait



Reservoirs are the engine of hydroponic growing.

an hour—because it knows it will need to add more fertilizer soon, and the reaction when concentrate is introduced to the reservoir by the micro-dosers will lower the pH on its own. Smart growers know that continuous additions of pH buffers can shift the reservoir's chemistry over time, possibly causing uptake issues for hungry cannabis plants.

There are other game-changing advances in controls and concepts that have begun to surface for hydroponic growers, including cloud-based technologies offering total growroom control. It's getting easier (and more efficient) to be productive, which means either less time fussing in the garden or the ability to grow more (or bigger) with no additional labor. And this means, in turn, that the future is looking bright for cannabis and the dedicated people who grow it. 🌿

Watch *high times.com/aqua* for more on aquaponics.



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In Colorado ski country, the hydro gardens of High Country Healing supply stoners nationwide with high-flying buds. *By Dan Skye*

# America's Highest Garden





**I**t's been said that attitude determines altitude—meaning that your approach to life has a lot to do with how high you'll fly. But in the mountains, it's just the opposite: Altitude determines attitude.

Essentially, you're looking down on everybody else—and not in a bad way. It's just that all of the world's drama is playing out far below you. The national stage seems distant when your home is nestled among majestic, snow-capped peaks.

Maybe that's why the mountain towns of Colorado have always embraced progressive politics—specifically, cannabis-law reform. Who cares what the flatlanders think?

The booming ski resort of Breckenridge decriminalized up to an ounce long before recreational pot was voted on by Coloradoans, while nearby Alma holds regular town meetings to manage its emerging cannabis industry, which is pouring tax revenue into the city's economy.



The hydro gardens of High Country Healing in Alma turn out some of the best pot in the Rockies.

Popular Grape Ape has been measured at 22 percent THC.



**Alma, at an** elevation of 10,578 feet, also happens to be the highest incorporated town in North America. It's a bedroom community to upscale Breckenridge, offering cheaper housing and an authentic mountain lifestyle. It's home to 275 people (and a couple hundred dogs)—a community of skiers, snowboarders, rafters, anglers, bikers, hikers, miners and outstanding growers.

Alma can also lay claim to being the home of America's highest cannabis garden, which is operated by High Country Healing. But Mark January, the owner who oversees the garden operations, is quick to clarify: "We're the highest legal licensed garden in America. I know plenty of growers who have gardens in their mountain homes high above us. We're surrounded by growers ... even if you don't realize it. Tourists have no idea how many grower ski bums live here."

Though he hails from Missouri, Mark is now a man of the mountains. He's a former member of the ski patrol and now, a respected member of Alma's business community.

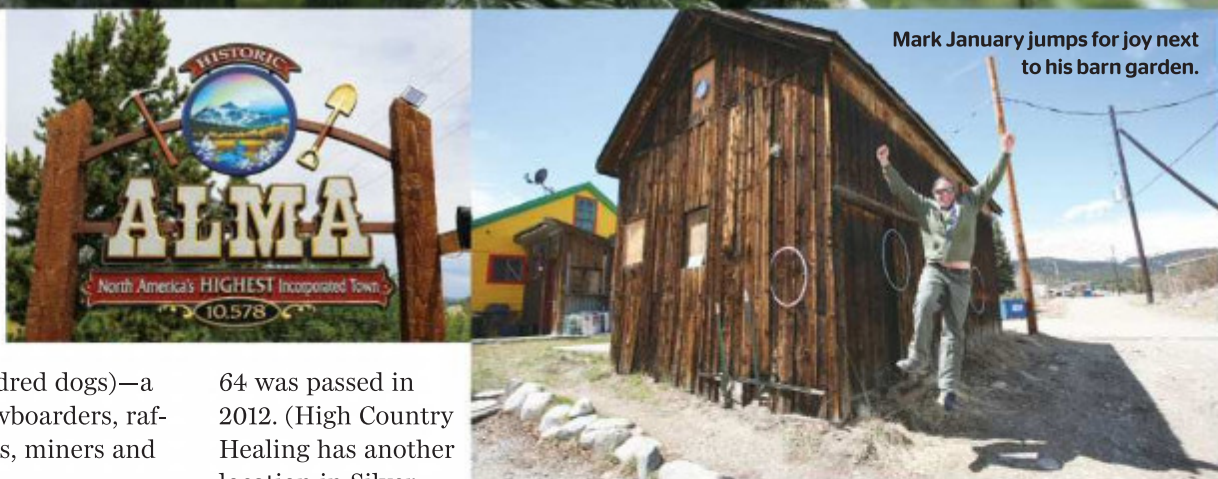
Like many Colorado pot shops, High Country Healing started out as a medical dispensary, but made the transition to recreational sales when Amendment

64 was passed in 2012. (High Country Healing has another location in Silverthorne, about 45 minutes away.)

The dispensary is ensconced in a bright yellow bungalow along Highway 9, Alma's main drag. Its buildings are nearly a century old, constructed by Gerald Galloway, a mining engineer who lived and raised a family there for close to 40 years. His wife taught music lessons in what is now the dispensary's lobby. At the rear of the house is a barn where Gerald melted and tested the ore—silver, gold and rhodochrosite—that miners brought in daily.

Alma just celebrated its 140-year anniversary. Many of the historical structures here were built in the 1930s to accommodate mining families, back when the town's population approached 20,000, spread across the area's mining camps. But history, as Mark discovered, can create hurdles—in this case, the issue of

Mark January jumps for joy next to his barn garden.

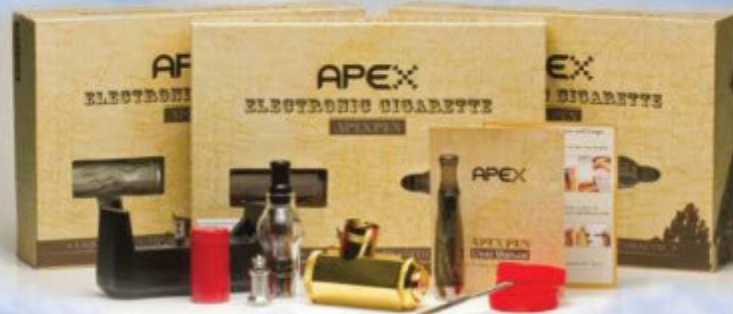


historical preservation.

Upon purchasing the property, he was forbidden to demolish the barn. However, after a week of doing bong rips and walking in circles, his master builder brought him crude napkin drawings of a grow op he'd dubbed "Barnfarm."

His solution: convert the barn into High Country's primary garden. The Alma Town Building Department approved and, within a week, the chief of police was helping develop plans to overhaul the structure. The barn's exterior was never touched, and its historical character remains intact. But it wasn't easy—in fact, "it was a total mess," Mark recalls. "Inside were a couple heaping piles of coal that had to be hauled out. Plus a stinky old outhouse had to be demolished, which would definitely grab your gag reflex."

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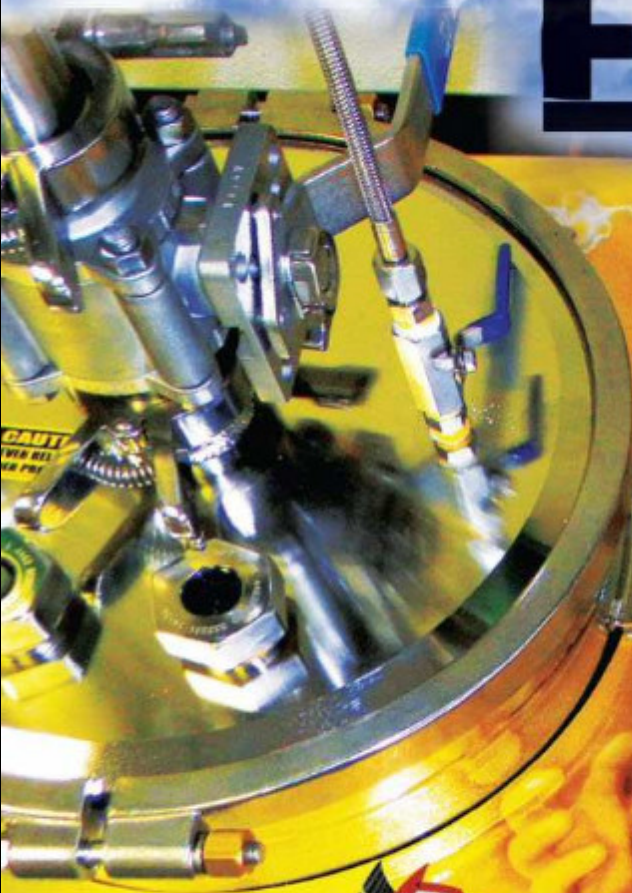


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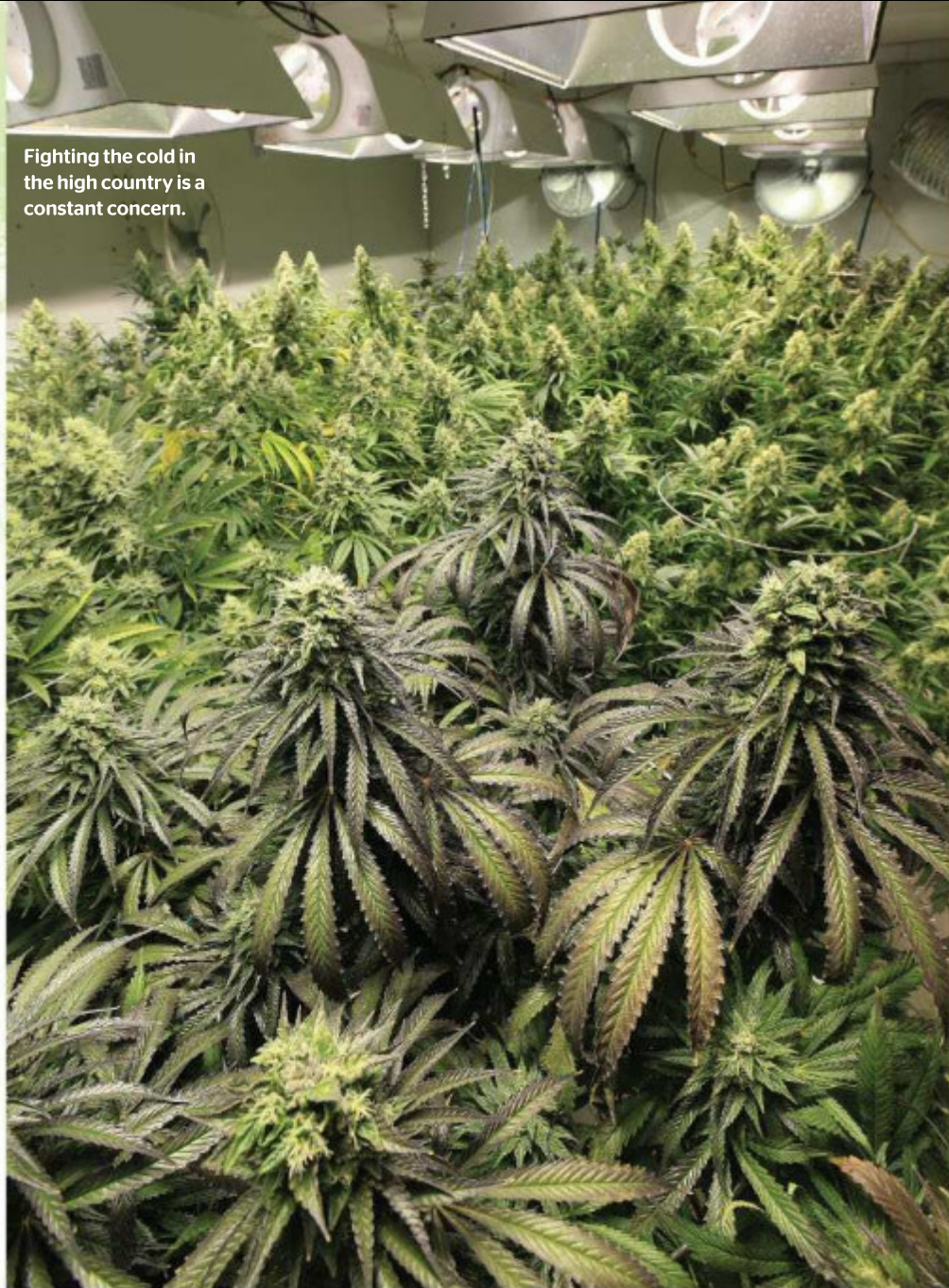
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Fighting the cold in the high country is a constant concern.



“There’s higher risk with hydroponics; there’s also higher reward, assuming the grow cycle is clean and free of any potential curveballs.”

municipalities after filtration. So our plants’ roots pull some of the earth’s finest water, which definitely affects the flowers. We’re a small, boutique mountain shop, and our clientele is extremely demanding when it comes to quality and potency.”

As for nutrients, Mark says he’s tried pretty much every high-quality product on the market. “They’re all amazing, depending on what you’re striving for—but we currently use Cutting Edge Solutions as a base nutrient line and Advanced Nutrients for additives. I’ve always liked these companies—not just for their amazing nutrients, but for their total honesty in a socially controversial industry. They don’t talk ‘tomatoes’; they talk cannabis. There’s no bullshit with either company.

“For feeding schedules during the light cycle, we flood our trays for 15 minutes three to four times in 12 hours, depending on where we are in the cycle. We always feed for 15 minutes within the first hour after the lights turn on and for another 15 minutes about an hour before they go off, with two interval feedings staggered in between. We don’t over-boost our nutrient levels; we actually suggest cutting all nutrient lines in half when starting out. Our ppm levels are lower at the start and finish of cycles, with average readings hovering around 1,200 to 1,400 ppm from late in week two until we flush beginning at the end of week six.”

(The term “ppm,” or “parts per million,” refers to the concentration of minerals in the water that you give to your plants. Distilled drinking water can measure as low as 0 ppm, but poor-quality tap water or water that flows through bad pipes can measure as high as 700 ppm. Most tap water will fall in the 200 to 400 ppm range.)

“When we top reservoir levels with water,” Mark continues, “we usually add nutrients to increase our ppm levels for optimal growth and happy plants. But we always flush for two to three weeks prior to harvest, slowly dropping ppm levels from 500 to 100.

The interior required total reframing of every rafter and stud to accommodate the brutal wind and snow-load requirements of the high country. And as with any commercial structure, all electrical requirements had to be carefully met. But thanks to its success, High Country Healing has expanded its all-hydro operation beyond the barn and added new local grow spaces.

“Prior to the legalization of recreational cannabis, we grew 50 percent soil/organic and 50 percent hydro,” Mark explains. “But in order to compete with the mega-dispensaries and warehouses across Colorado, we decided to shift our gardens to 100 percent hydro. While there’s higher risk with hydroponics, there’s also higher reward, assuming the grow cycle is clean and free of any potential curveballs. Our hydro gardens are very rewarding when all the details are in place. We see greater yields and more consistency. We keep total control while cultivating smaller plants in greater numbers, never letting our gardens get

overgrown or overwhelming.

“Our flood-and-drain systems are very simple to operate, easy to clean, and built for consistent and perpetual production. Our growrooms are usually in transition between harvests for less than 48 hours, which means all of our flowering rooms have just two days off every year.

“There are lots of components and many parts when you grow hydroponically in multiple rooms with thousands of plants. To prevent crop failure and maintain garden performance, we’re always replacing pumps, timers, fans, bulbs and ballasts to keep our wheels turning.”

Mark also cites Alma’s pure water as a natural reason to go hydro. The town is blessed with the highest watershed in North America. “The water is special up here, and we all know it makes a difference,” he says. “Alma has always paid extra attention to any kind of impact on our local watershed. Some water reports state that Alma water comes in cleaner before filtration than the water of most

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High Country Healing produces 40 to 60 recreational and medical strains.



“The majority of trays and tables used in our gardens are all 4' x 4's and 4' x 8's in our flowering rooms, with 2' x 2's stacked on racks in our veg rooms. We also like 3' x 6' trays for the ease of moving them. Our reservoirs are all 70 gallons to feed the 4' x 4' trays and 115 gallons to feed the 4' x 8's. They're loaded with recirculation/feeding pumps, air-stone paddles and, of course, nutrients and Alma water.

“For the medium, the majority of our plants grow in hydroton or clay rocks for maximum root development, but also for the ease of cleaning and recycling our grow rocks. For preventative pesticide control, we use Azatrol or Azamax and keep molds and mildews at bay with GreenCure or Serenade. There's a lot of automation in our rooms, but we're very hands-on, with daily defoliation, pruning and plucking. Our plants are almost over-trained to direct all their energy to flower and bud development.”

The High Country growrooms yield about 20 to 40 pounds per month, producing anywhere from 40 to 60 medical

and recreational strains. But Mark says they never cherish false expectations regarding yields and avoid the temptation of the “homerun harvest.” It's far more important to harvest quickly and have the flowering rooms transition smoothly, without any downtime between crops.

When asked about high-altitude grow problems, Mark's first response is: “It's fucking cold up here!” Then he adds, “You'd better love winter to live here. Summers rarely get above 80 degrees. We get piles of snow in Alma, and it's not rare to see a two-footer overnight. So you'd better love snow and shoveling. We actually fight the cold more than the heat, which makes it easier to control. But the sub-zero temps can be a bit challenging. Our nugs get super-purple and exotic-looking when that happens, and yields actually drop. Power outages during big snowstorms can be stressful, too: You gotta move fast to get those generators up and running!

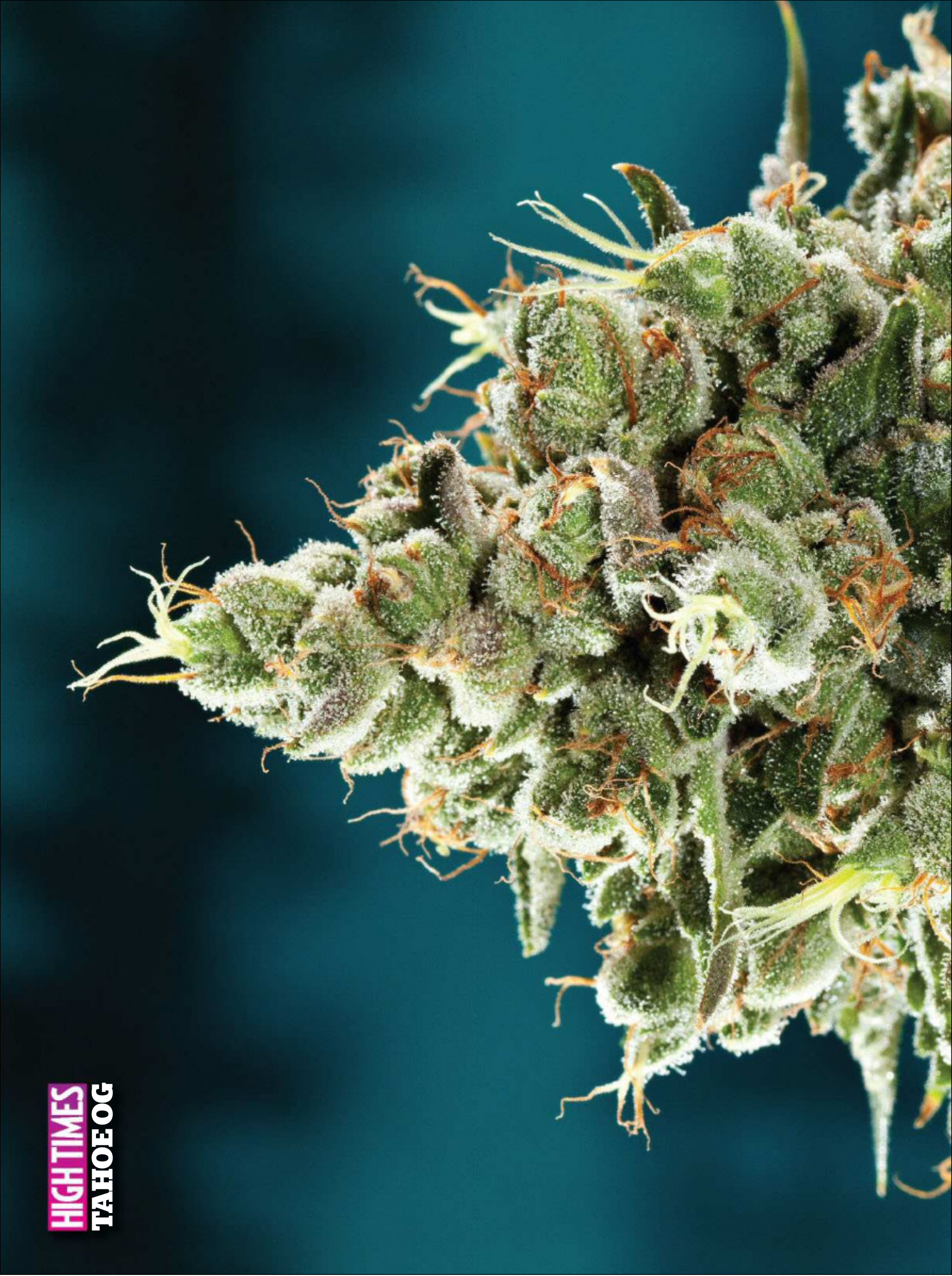
“Still,” he says, “it's a dream growing in the mountains, because it's

consistently cool. We don't fight the extreme temperatures like most places. Our rooms are consistently operating at approximately 76.1°F, and we see little fluctuation in temperature. At this altitude, there's also a higher release of CO<sub>2</sub>, which accelerates plant growth, flower development and potency.”

Grape Ape is one of High Country's most popular stains, an 80 percent *indica* that recently tested at 22 percent THC, imbuing its users with a heavy brain and body high. Its genetics are challenging, “but worth it on harvest day,” Mark says. Another High Country favorite, the Tahoe OG, has been testing at 26 percent and is sought after statewide; this 50/50 hybrid is extremely stable and provides a smooth, uplifting high. Women seem to love Mother's Finest, a strong *sativa* tested at 24 percent THC. It offers fruity terpene properties and a focused, grounded high. Mark calls Super Bubble Diesel a “racecar-like *sativa*,” very potent—testing at 27 percent THC, it's a cross of Super Skunk, Bubble Gum and Sour Diesel.

# Grape Ape





**HIGH TIMES**  
**TAHOE OG**





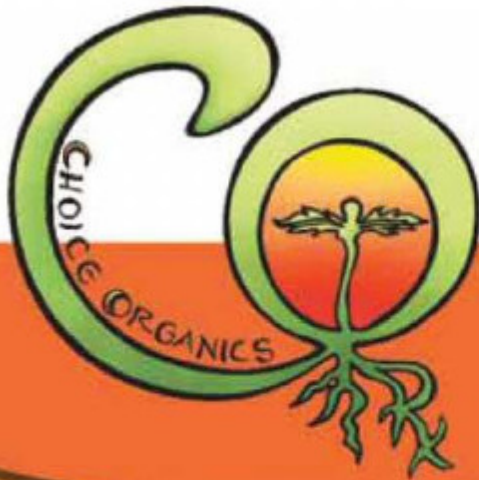
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Hydro gardens may require constant oversight, but the buds they produce are worth the vigilance.

“We’re very hands-on, with daily defoliation, pruning and plucking. Our plants are almost over-trained to direct all their energy to flower and bud development.”



Mark displays an array of popular High Country strains behind the dispensary counter.

The success of High Country Healing’s strains may in fact be supernatural, Mark insists: “There are old spirits and energy in the shop. Everybody talks about it. Even weirder is that every grower here on staff claims they’ve heard instruments playing in our front waiting room, where Mrs. Galloway taught. I think our plants hear the music, too.”

Perhaps. But their success is more likely due to the fact that High Country Healing’s growers focus on consistency, potency and diversity in their gardens. And the pot public has taken note: High Country Healing’s two shops are popular throughout Colorado and gaining stature nationwide.

“We get a lot of Front Range folks [from eastern Colorado] who simply want to get out of the city, smoke some mountain weed, go for a hike or ski—just relax in the mountains,” Mark says. “We’re lucky to be located just 17 miles south of Breckenridge, the busiest ski resort on earth and home to a half-dozen dispensaries. And just like the coffeshop scene in Amsterdam, cannabis lovers are traveling from shop to shop in the mountains in search of the very best.” 🌿

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# General Announcement

in accordance with the provisions of California Corporations Code  
Section 25102(n)



## G FARMALABS LIMITED

a Nevada Corporation  
is conducting a private offering of

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for an aggregate offering price of \$5,000,000  
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G FarmaLabs is a producer and processor of award-winning cannabis products. The brand is very knowledgeable on all aspects of the marijuana marketplace. It is an industry leader in the safe and professional refinement of cannabis to ensure the highest quality products for consumers. G FarmaLabs product lines include Liquid Gold Extracts, G Stiks, Vape Pens and Edibles/Confections. G FarmaLabs extracts cannabis to refine value-added oil for many uses, i.e., vape oil (natural and flavored) and its award-winning cannabis chocolate products and confections. The chocolates are custom manufactured under the close personal attention of professional chocolatiers. The latest extraction equipment and technologies are seamlessly combined with scientific cannabis refinement techniques and traditional chocolate production methods to ensure consistently excellent flavor and reliable dosage. The company plans to introduce innovative new products through applied state-of-the-art cannabis science. G FarmaLabs continues to expand its distribution within the State of California and plans expansion to other legal cannabis states across the country. Over the last year, G FarmaLabs has become the country's leading, most popular brand of cannabis-infused products with plans to repeat this success state-by-state. Owner funding and cash flow have fueled the company's initial growth. In order to maintain leadership of this emerging economic opportunity, G FarmaLabs is seeking funding to fuel growth in California and implement its expansion plan.

PROSPECTIVE INVESTORS MUST BE RESIDENTS OF THE STATE OF CALIFORNIA AND MUST BE QUALIFIED PURCHASERS AS DEFINED UNDER CALIFORNIA CORPORATIONS CODE SECTION 25102(n)(2). No money or other consideration is being solicited by means of this announcement or will be accepted. An indication of interest made by a prospective purchaser shall involve no obligation or commitment of any kind. No sales will be made or commitment to purchase accepted until five business days after delivery of a written offering disclosure statement and subscription information to the prospective purchaser in accordance with the requirements of the California Corporations Code.

For more complete information about G FarmaLabs Limited and the Common Stock, please contact:

**G FarmaLabs Limited**  
**369 Third Street, #464**  
**San Rafael, CA 94901**  
**Telephone: (714) 495-2582**  
**Email: [investors@GFarmaLabs.com](mailto:investors@GFarmaLabs.com)**  
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# Golden Age of Edibles

Learn about the history of edibles, and how today's edibles are safer than ever before.

*By Elise McDonough*

**Eating cannabis** is a tradition as old as time. Ancient Chinese emperors brewed cannabis tea. Hindus drank *bhang*, an intoxicating blend of warm milk, ginger, garam masala and gunjah. Nomadic tribes wandering Morocco ate a heady hash jam, thick with dried fruits, chopped nuts and prized spices, known as *mahjoun*. Hashish eating even figured prominently in the classic *One Thousand and One Nights* as a favorite treat of mystics, artists and healers.

In Paris in the 1840s, literary heavyweights such as Charles Baudelaire, Victor Hugo and Alexandre Dumas crumbled hashish into their coffee, with the stimulating psychoactivity fueling late-night discussions at their Club des Hachichins (“Club of the Hashish Eaters”). In 1857, a young New York State resident named Fitz Hugh Ludlow published *The Hasheesh Eater*, a book about his experiences imbibing a hash tincture from a local apothecary.

So there's nothing all that new about marijuana edibles except their legal status. Thanks to nearly a century of pot prohibition, American society has been prevented from developing models of socially responsible THC ingestion. The wisdom we need to know how much to eat, when to eat it and what to expect has been driven deep underground. And so the much-hyped hysteria in the media today surrounding cannabis-infused foodstuffs is due to an ignorance of basic safety precautions and a lack of shared understanding about eating pot.

SARA REMINGTON







Get baked with  
a Great Ganja  
Pumpkin Pie  
this Fall.



Gertrude Stein (left) and Alice B. Toklas, inventor of the pot brownie.

**T**he modern marijuana edibles era began in 1954, when an elderly lesbian, Alice B. Toklas, the life partner of Gertrude Stein (the famous writer, art collector, and influencer of Hemingway, Picasso and Matisse), published her infamous cookbook. Containing a recipe for “Haschich Fudge” (sic) that was really more like a *mahjoun* or a parking-lot goo ball, *The Alice B. Toklas Cookbook* reintroduced the concept of cooking with cannabis to the American counterculture, and the idea of “pot brownies” took root in the popular consciousness. The recipe had been presented to Toklas as a gift by a painter friend named Brion Gysin, whose notes on sourcing the cannabis make it clear that he knew exactly what he was dealing with:

*Take 1 teaspoon black peppercorns, 1 whole nutmeg, 4 average sticks of cinnamon, 1 teaspoon coriander. These should all be pulverized in a mortar. About a handful each of stone dates, dried figs, shelled almonds and peanuts: chop these and mix them together. A bunch of canibus sativa [sic] can be pulverized. This along with the spices should be dusted over the mixed fruit and nuts, kneaded together. About a cup of sugar dissolved in a big pat of butter. Rolled into a cake and cut into pieces or made into balls about the size of a walnut, it should be eaten with care. Two pieces are quite sufficient. Obtaining the canibus may present certain difficulties .... It should be picked and dried as soon as it has gone to seed and while the plant is still green.*

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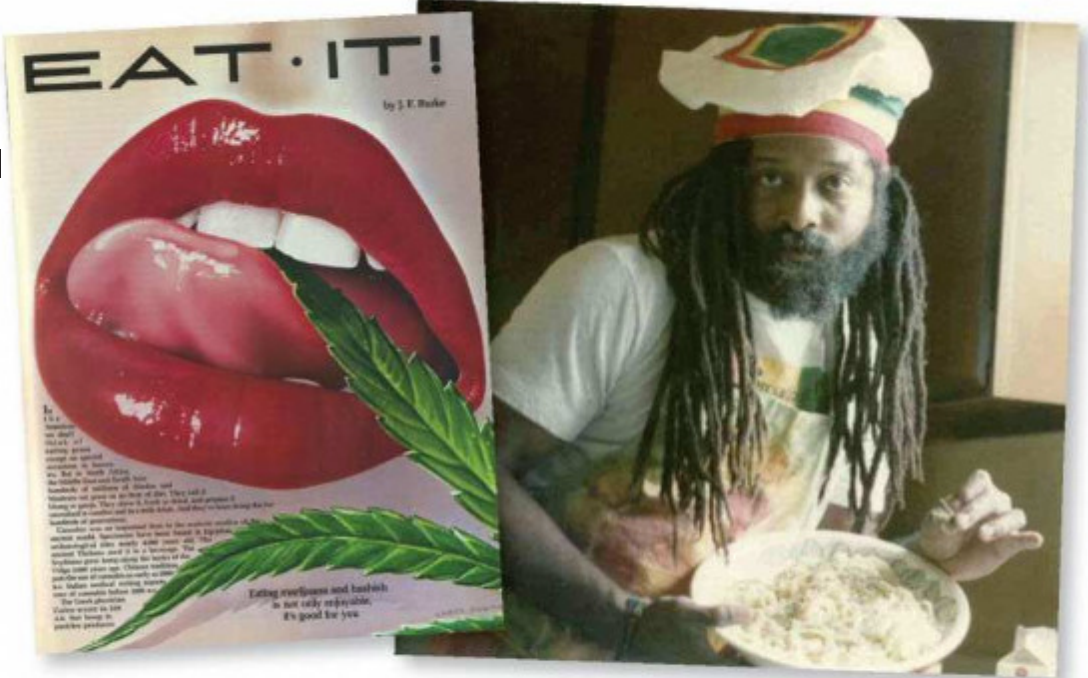


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**INDICA**

*High Times* readers first received essential knowledge about the ingestion of pot way back in 1978, when writer J.F. Burke contributed a brilliant article simply titled “Eat It!” This scribe worked as a sailor on cross-Atlantic journeys and had made a habit of eating hash, embracing the customs of the non-Western cultures he’d come in contact with, including Arabs, Indians and Africans. Burke offered tips on eating ground dried flowers along with some strangely prophetic predictions: “The next step after decriminalization may be brought about by the reintroduction of cannabis into the modern materia medica,” he wrote, after describing pot’s anti-tumor properties as well as its ability to lower blood pressure and relieve stress.

While ’70s-era heads knew more about the medicinal uses of cannabis than we imagine, Burke and his sailor buddies didn’t understand how infusing the herb into a chosen fat increased its potency and absorbability; instead, they recommended that people just crumble up the flowers and add them to their food. But Burke did offer one piece of sage advice that might have helped *New York Times* columnist Maureen Dowd navigate her recent bad trip:



“Eat It!” offered sage advice in 1978, while Chef Ra’s gourmet ganja cooking taught a new generation.

*What if you eat too much? You’ll be drunk. You may barf. You might trip. But you won’t die. The ratio of effective-to-lethal dose of THC is 1 to 40,000 ... the lethal dose of THC would be 4,000,000 milligrams, an unwieldy mass to get into one’s stomach, much less keep there.*

Later, starting in 1988, *High Times* editor Steve Hager contacted his high-school friend Jim Wilson, a.k.a. Chef Ra, and convinced him to write an infused-foods column called “Psychedelic Kitchen,” which taught countless heads how to sauté their pot in butter or oil and add it to healthy Ital-style meals. Chef Ra’s column continued for 15 years, and his best recipes were included in *The Official High Times Cannabis Cookbook* in 2012.

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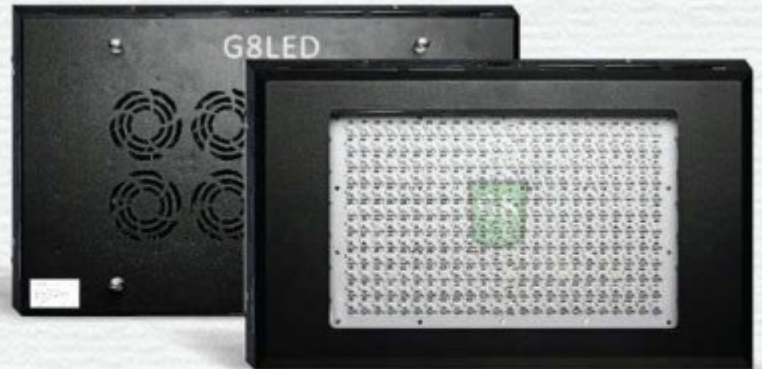
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Notorious in the San Francisco Bay Area for her outlaw kitchen throughout the 1980s and '90s, Mary Jane Rathbun baked weed-laced brownies for AIDS patients. Working with Denis Peron, "Brownie Mary" became a leader of the medical marijuana movement, taking a stance of compassionate civil disobedience that resulted in several arrests. Each time, Brownie Mary called bullshit and would appear in court decked out in pro-pot buttons, basically daring prosecutors in the most liberal city in the nation to find a jury that would convict a little old lady for giving medical marijuana edibles to severely ill patients. Her activism helped pave the way for a watershed event: the 1996 passage of Proposition 215, which made California the first state to legalize the medicinal use of pot. Today, lab testing has revolutionized the cannabis industry, making consistent, predictable experiences possible for the first time in human history, and marijuana has been infused in a wide variety of foods—everything



Brownie Mary made edibles part of her activism.

from drinks and baked goods to gummy candy and chocolate. Enterprising edibles makers have even revived *mahjoun* and *bhong*, claiming these ancient words as brands for new cannabis businesses that hope to market marijuana-infused foods to the masses.

With prohibition being repealed in states like Colorado and Washington, more people are experimenting with marijuana edibles, leading to some growing pains as dosage and packaging requirements are established. However, until the cannabis community develops its own customs and rituals, and until effective public-safety campaigns are executed, we'll have to keep repeating this sage advice: "Go low and slow. Start with a low dose of 10 to 20 milligrams, then wait two hours before consuming any more pot food."

In the meantime, we can all look forward to the day when cannabis is just another ingredient (although a highly useful one!) in the pantry. ✨

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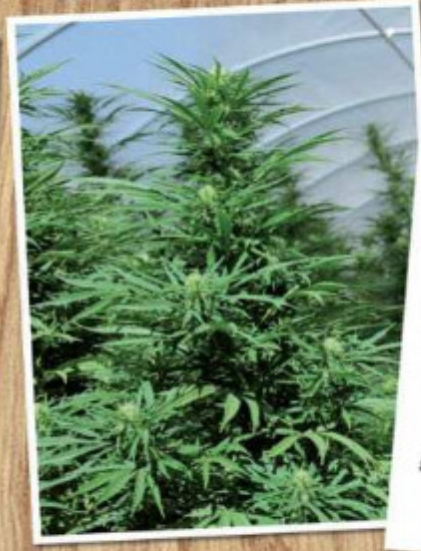


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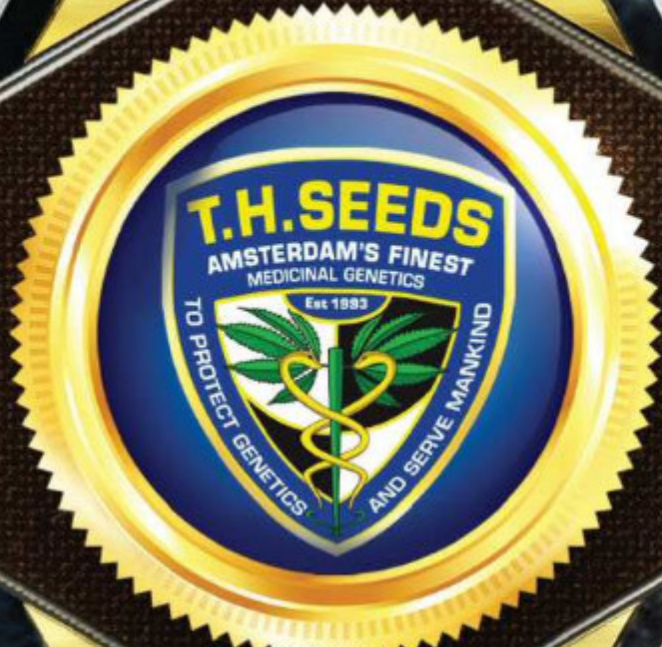
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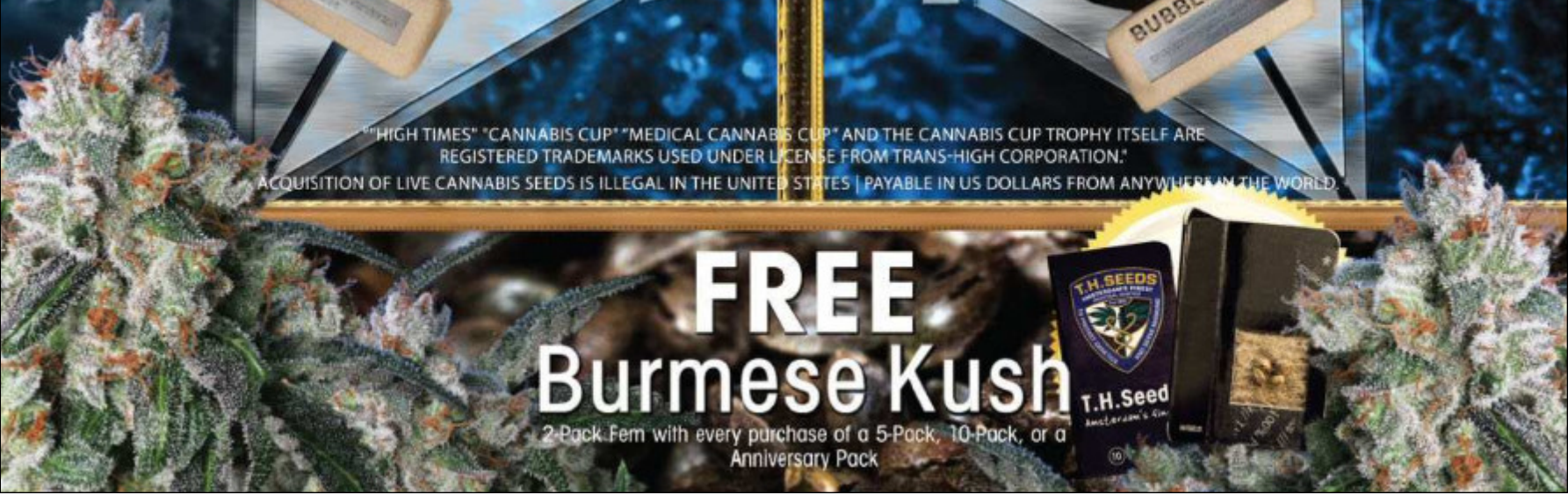


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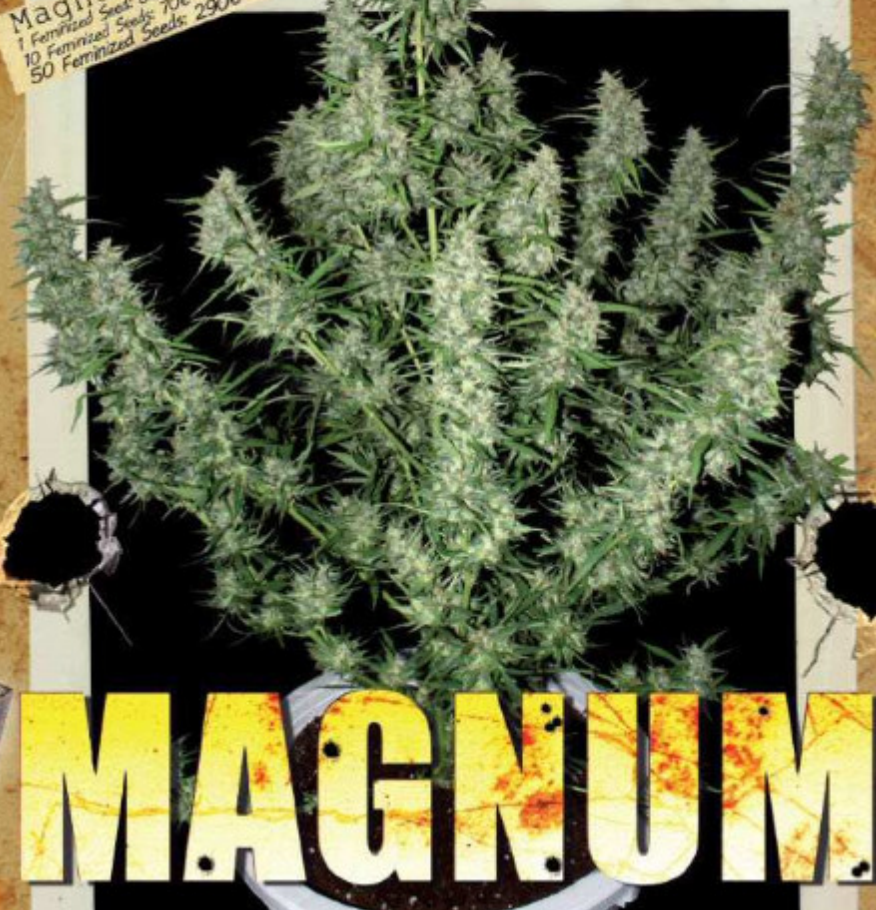


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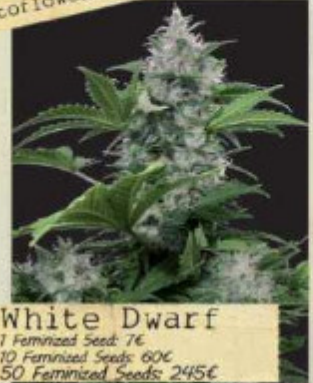
Magnum  
1 Feminized Seed: 86  
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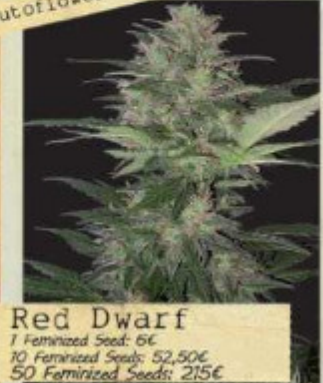
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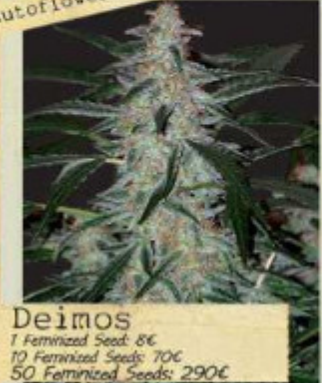
**White Dwarf**  
1 Feminized Seed: 76  
10 Feminized Seeds: 606  
50 Feminized Seeds: 2456

Autoflowering



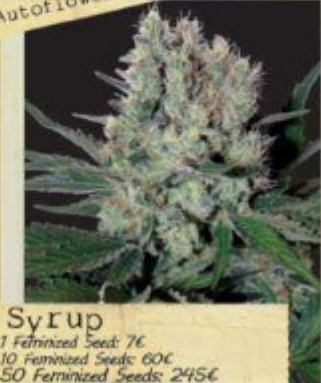
**Red Dwarf**  
1 Feminized Seed: 66  
10 Feminized Seeds: 52,506  
50 Feminized Seeds: 2156

Autoflowering



**Deimos**  
1 Feminized Seed: 86  
10 Feminized Seeds: 706  
50 Feminized Seeds: 2906

Autoflowering



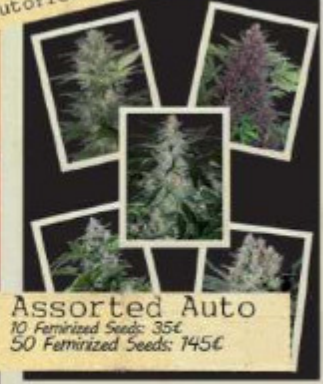
**Syrup**  
1 Feminized Seed: 76  
10 Feminized Seeds: 606  
50 Feminized Seeds: 2456

Autoflowering



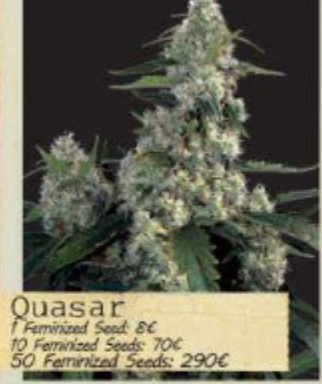
**B.Purple Kush**  
1 Feminized Seed: 76  
10 Feminized Seeds: 606  
50 Feminized Seeds: 2456

Autoflowering



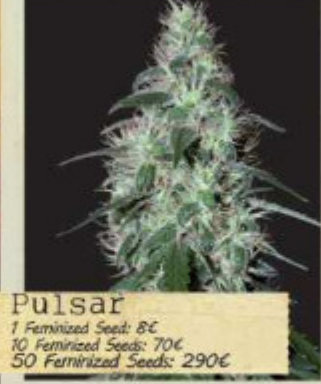
**Assorted Auto**  
10 Feminized Seeds: 356  
50 Feminized Seeds: 1456

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**Quasar**  
1 Feminized Seed: 86  
10 Feminized Seeds: 706  
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# How Clean Is Your Cannabis?

You just bought some wax. But do you know what's in it, who blasted it or who grew the plants—let alone how they were grown?

*By Dr. Darryl Hudson, PhD*

**U**nder a new program announced in Canada, strict guidelines have been imposed on the medical marijuana industry to ensure that the final product doesn't contain significant levels of heavy metals, aflatoxins, pesticides or microbial contamination. These guidelines weren't created specifically for cannabis: They're the same Pharmacopoeia-based standards used by Health Canada for other dried natural-health products derived from plants (i.e., echinacea, ginseng and so on).

While the regulations were designed to protect Canadian consumers, it's actually quite difficult to meet these "dried product" standards by growing, drying and curing cannabis using the traditional methods. Many microbes that occur naturally in plants and soil can be flagged by such sensitive microbial tests. For example, the common *Pseudomonas aeruginosa* is one of the primary causes of hospital infections and can also be found on cannabis. Even a small amount of fungal sporulation, whether during growth or post-harvest, can lead to a failed test. As a result, some of the world's largest medical marijuana producers have opted to sterilize their cannabis using gamma radiation. While other, less invasive techniques exist to ensure product safety, each harvested batch must be tested independently by an outside lab prior to sale.

In the United States, the Food and Drug Administration has regulations similar to Health Canada's for most plant-based medicines. As attitudes toward cannabis undergo profound social change, there's a growing demand for lab tests to ensure the safety not only of medical marijuana, but recreational cannabis as well.

To many seasoned users, the idea of requiring such tests seems almost ludicrous. When cannabis is grown properly, without harsh chemical fertilizers or inorganic pesticides, and dried and cured in a clean environment, it's generally safe for consumption by any method. Indeed, it's not too surprising that no one is getting sick from cannabis, considering the method of consumption used by most people: Biological organisms do not typically survive the combustion or baking process.

However, several cases of illness and even death have been reported due to aspergillosis of the lungs following the smoking of cannabis contaminated by fungi. While it's difficult to prove that the infection was *directly* due to cannabis use, it should be noted that all of these cases involved people with compromised immune systems, such as transplant recipients or HIV/AIDS patients. And as other methods of ingesting cannabis become more popular (topicals, raw juicing, etc.), the risks of microbial infection may increase. People employing these methods should be much more concerned about whether there are infectious microbes such as *E. coli* on their plants.

While bacteria and fungi pose potential risks, we need to pay attention not

only to the immediate short-term consequences of using contaminated cannabis, but also the long-term effects, which are often difficult to correlate with any single factor. When smoking, for example, there is always the risk of inhaling toxic vapors from the combusted material. Heavy metals, aflatoxins, mycotoxins, and residues from fertilizers, pesticides and fungicides can all be inhaled following combustion. Even vaporization can potentially release a number of these elements. Though a single low-dose



What's in your dabs?

**Solvent testing is extremely important, especially when substances are used that are not really safe for human consumption.**

exposure appears relatively harmless, long-term exposure to these physically damaging and even carcinogenic agents should be a matter of serious concern.

This question becomes more acute when we ask to what extent these substances are being concentrated during the creation of cannabis extracts. There has been a sharp increase in extract production in recent years: Dabs, oils, waxes, budders, shatters and medical extracts are all increasingly available. However, unlike concentrated pharmaceutical drugs, many of the people making these extracts are not accredited scientists working in laboratory settings.

Testing for residual solvents has been one of the main focuses of quality control when it comes to cannabis extracts.

However, this is only the obvious first thing to look for, since solvents are a major input in the extraction process. For this reason, solvent testing is extremely important, especially when substances are used that are not really safe for human consumption—for example, naphtha, a common solvent used in lighter fluid. The MSDS (material safety data sheet) for naphtha specifies that "vapors or mists from this material may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms," which can also resemble the effects of a cannabis "high." For this reason, it is important to ensure that the solvent used in creating the concentrate has been properly removed.

For most of the extracts, residual solvent testing is the only safety analysis performed. Yet there are other concerns. Saving time or money can tempt concentrate producers to take shortcuts or make other compromises if they don't directly perceive a negative consequence. The people making these potentially hazardous decisions may not even be aware of their danger—but ignorance is not an excuse for compromising people's health.

I assume, for example, that most concentrate producers use high-quality solvents or gases. Yet the difference in cost between a 99.99 percent pure substance and something that

is *relatively* pure is considerable. Further, pure solvents or gases are much harder to acquire—and "pure," in these cases, doesn't always mean *pure*. Both the liquids and gases used in extraction often contain impurities. Typically, around 20 percent of the volatile gas found in butane is actually other gases such as hexane, heptane, ethyl mercaptan, benzene or some other potentially toxic substance.

One of the first things taught about compressed gases in a certification course is that it's not only important to know the source (i.e., supplier) of your gas, but also to know that the tank in which it arrives has been properly cleaned and stored. These tanks can be made from a variety of different metals, and each typically has

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to be cleaned in a different fashion. Even more important is knowing what other gases have previously been stored in the tank. Many industrial suppliers of compressed gas simply take an empty tank and replace it with a filled one. This new tank could have been previously filled with any number of gases that may have toxic impurities. Keep in mind that when a tank is “empty,” it still contains gas—just not compressed at that point. The extent to which these leftover residues end up in concentrates needs to be further investigated.

**Concentrates and Contaminants**

I set out to determine the extent to which common contaminants would accumulate in a basic extraction process. To do this, I used cannabis that had become moldy in the final stages of growth. Three separate samples were taken from these plants. Sample 1 consisted of the moldy dried flowers and had only biological contaminants (BC). Sample 2 was sprayed with a fungicide and two pesticides (FP) prior to harvest. Sample 3 contained toxic pollutants (TP) and was intended to represent potential post-harvest contamination; it included 1 gram of dried paint flecks, 1 milliliter (ml) of motor oil, 1 ml of bleach, 1 ml of dish detergent and 1 ml of rusty water.

These samples were extracted using the standard 99% isopropyl-alcohol process commonly used to make cannabis oil. After soaking overnight, the liquid was filtered and evaporated off. Each 100-gram sample yielded from 15 to 17 grams of cannabis oil. This was sent to an accredited third-party laboratory to test for aflatoxins, elemental components and pesticide residues.

The results were not encouraging (see table). Aflatoxins were found above acceptable limits in the two samples not treated with fungicide. This demonstrates that the toxins produced by fungi *did* accumulate in the extract. At the same time, pesticides were detected in Sample 2, demonstrating that these also accumulate during the extraction process.

Heavy metals were detected in Samples 2 and 3—specifically, charged metal ions like aluminum, cadmium, copper, lead, magnesium, nickel, strontium, tin and zinc. Regardless of whether these levels can be considered “safe,” the continuous inhalation of such particles over time cannot be good. These simple tests demonstrate the potential for toxic impurities to accumulate during the extraction process.



It’s essential that you know how the concentrates that you ingest are produced.

Sample ID			Sample 1 (BC)	Sample 2 (FP)	Sample 3 (TP)
Analytes	Units	RL			
Aluminum	mg/kg	0.2	0.02	1.1	2.9
Boron	mg/kg	0.2	150	226	129
Cadmium	mg/kg	0.002	<0.002	<0.002	0.062
Calcium	mg/kg	10	110	70	310
Chromium	mg/kg	0.2	<0.2	<0.2	<0.2
Cobalt	mg/kg	0.02	<0.02	<0.02	<0.02
Copper	mg/kg	0.2	<0.2	4.7	2.5
Iron	mg/kg	4	5	8	6
Lead	mg/kg	0.02	0.02	0.02	0.15
Lithium	mg/kg	0.02	0.02	0.28	0.14
Magnesium	mg/kg	2	90	307	192
Manganese	mg/kg	0.2	5.5	6.9	3.2
Mercury	mg/kg	0.01	<0.01	<0.01	<0.01
Nickel	mg/kg	0.2	<0.2	<0.2	0.4
Potassium	mg/kg	4	1,490	1,860	4,680
Sodium	mg/kg	10	20	20	40
Strontium	mg/kg	0.2	<0.2	<0.2	0.8
Tin	mg/kg	0.02	0.02	0.15	0.24
Zinc	mg/kg	0.2	0.2	2.6	4.1



# WARNING: CANNABIS IS AN ACCUMULATOR PLANT...

**Did you know Cannabis was used at the Chernobyl site to help pull radioactive contaminants out of the soil?**

They used Cannabis for soil remediation because it's an accumulator plant that absorbs nearly everything in its environment. While soil remediation sounds great, the fact is, the cannabis plants became highly radioactive and had to be disposed of properly as well.

## COULD YOU IMAGINE A PATIENT SMOKING RADIOACTIVE WEED?

It's a scary thought, isn't it? In short, cannabis accumulates everything in its environment—including potential toxins—and retains them even after harvest.

In other words, whatever your plants accumulated while growing—you are now smoking. That's why you need to know how to protect yourself and your patients from potential medical marijuana toxicity.

The entire story, along with many other little-known, yet vitally important facts are revealed in a new Bulgarian Academy of Sciences white paper titled:

**"ELIMINATING HEAVY-METAL TOXICITY IN MEDICAL MARIJUANA, TO PRODUCE PATIENTS' MEDICINE SAFER THAN DRINKING WATER... WHILE RAISING BUD WEIGHT, THC, AND CANNABINOIDS"**

The author of the white paper, Julian Karadjov, PhD, reveals facts medical marijuana growers absolutely MUST know. Here are just a few...

- **The little-known fact that makes Cannabis totally different from other plants** and why not knowing this can endanger the lives of your patients!

- **Why the nutrients you feed your plants could actually be turning them toxic** (make sure you check your bloom boosters for this one common ingredient that could be toxic)

- **Exactly which heavy metals are toxic and how to protect your patients from ingesting them** (there are some heavy metals that are completely harmless. Get the complete list inside)

- **Surprising plant tissue sample results of Berlin, Hash Plant, and White Rhino strains of medical marijuana** (goes completely against what most growers think is needed to maximize size, weight and potency!)

- **The TRUTH about so-called "Pharmaceutical Grade" salts and chelates**

- **Why you can't trust regulators and other government "watch dogs"** to make sure the hydroponics nutrients you feed your plants are safe

- **The 2 biggest MYTHS about natural and synthetic chelators** and their role in toxic metal absorption

- **How to guarantee—with 100% confidence—that your medical marijuana is as pure and harmless** as filtered drinking water

- **How the University of Mississippi achieved 21% more yield from their cannabis plants** with one simple change to their feeding program

- **How to nearly DOUBLE the amount of THC and other cannabinoids** your plants produce the very next run you start (new test results from Hedron Analytical Inc.)

- **As seen on TV: the dangers of medical marijuana cadmium poisoning** (and how to help your patients completely avoid this risk!)

And there's more too... **the dangers of "home brew" hydroponics nutrient formulations ...** African marijuana cadmium dangers... plus other little-known facts most growers never hear about.

**The bottom line is:** if you grow medical marijuana and care about the safety of your patients at all (or you use marijuana yourself) then you must read this white paper.

It's free to access and available online. Simply visit

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Raising the Bud Weights... and Reputations... of Top Growers

**CBDanger**

While many people make their own high-THC extracts, the interest in CBD has sparked a whole new industry surrounding this molecule and its potential medical benefits. Not only have breeders begun to focus on strains with high levels of CBD, but those looking to commercialize such extracts are able to create inexpensive CBD concentrates using industrial hemp.

One of the first and largest American producers of a high-CBD extract claims to be using raw hemp material grown in Canada. Similar extracts can now be purchased cheaply from other countries, such as China and the Czech Republic.

It didn't take me long to track down a number of extracts coming from China. While a supplier in Chicago claims to possess a certificate of analysis (CA) ensuring the safety of the product, I was able with relatively little effort to trace the source of the raw material: It was being shipped by a company in Hong Kong that acquired the hemp from China's Heilongjiang province.

Google Earth reveals a disturbing fact: The crops are being grown in a mountain valley that has mines all around. The runoff from these mines directly feeds the



Is Chinese hemp toxic?

hemp crops. This raises serious concerns regarding the potential contaminants in these plants. Many plants—including cannabis—have been shown to absorb heavy-metal ions and other toxins from the soil or water. Precisely because of their capacity to hyperaccumulate toxic elements, these plants are used to clean up contaminated areas through a process known as phytoremediation. Plants also exchange air with the atmosphere, essentially breathing in any toxins that may be present. Fungicides and pesticides can leave residues as well.

A lack of strict environmental controls leads to contaminated soil. In the past six months, *The New York Times* has published two articles detailing how soil and water pollution in China have ended up in the food supply. Heavy-metal concentrations in plants grown in wastewater-irrigated soil were also significantly higher, exceeding the permissible limits

set by the Environmental Protection Agency and the World Health Organization. The extent to which these toxic substances are accumulating in Chinese hemp—and especially the concentrates made from it—have yet to be determined.

The disturbing reality is that without knowing exactly who grew your plants, what chemicals they used and how they produced the extract, you are taking a gamble with your future health. Aflatoxins and heavy metals are among the most carcinogenic substances known to science. Hitting a dab or using a concentrate with high levels of these substances is relatively unnoticeable over the short term, yet it will drastically increase the risk of cancer down the road. With new research coming out showing that cannabis smoking does not necessarily increase cancer rates—and may even play a preventative role—it would be detrimental to the cannabis movement to see a reversal of these statistics due to the consumption of contaminated extracts. ✨

*Darryl Hudson is president of DOC Solutions, which specializes in agricultural consulting and specialty fertilizers. He holds a PhD in plant molecular biology and genetics.*

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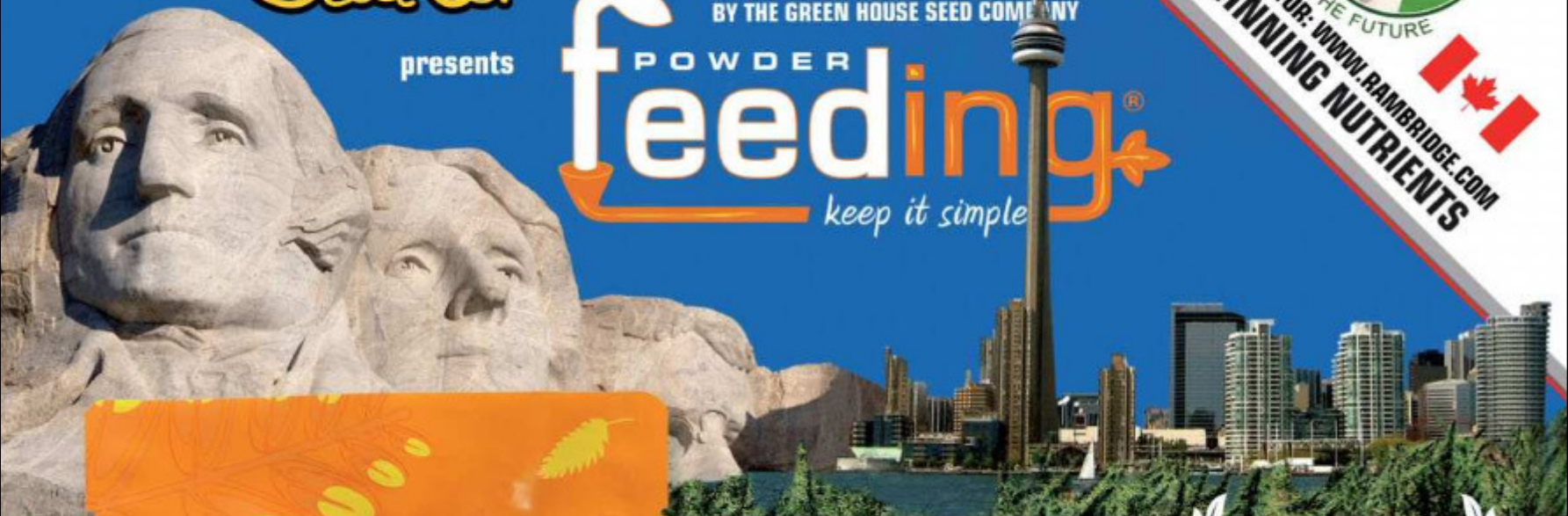
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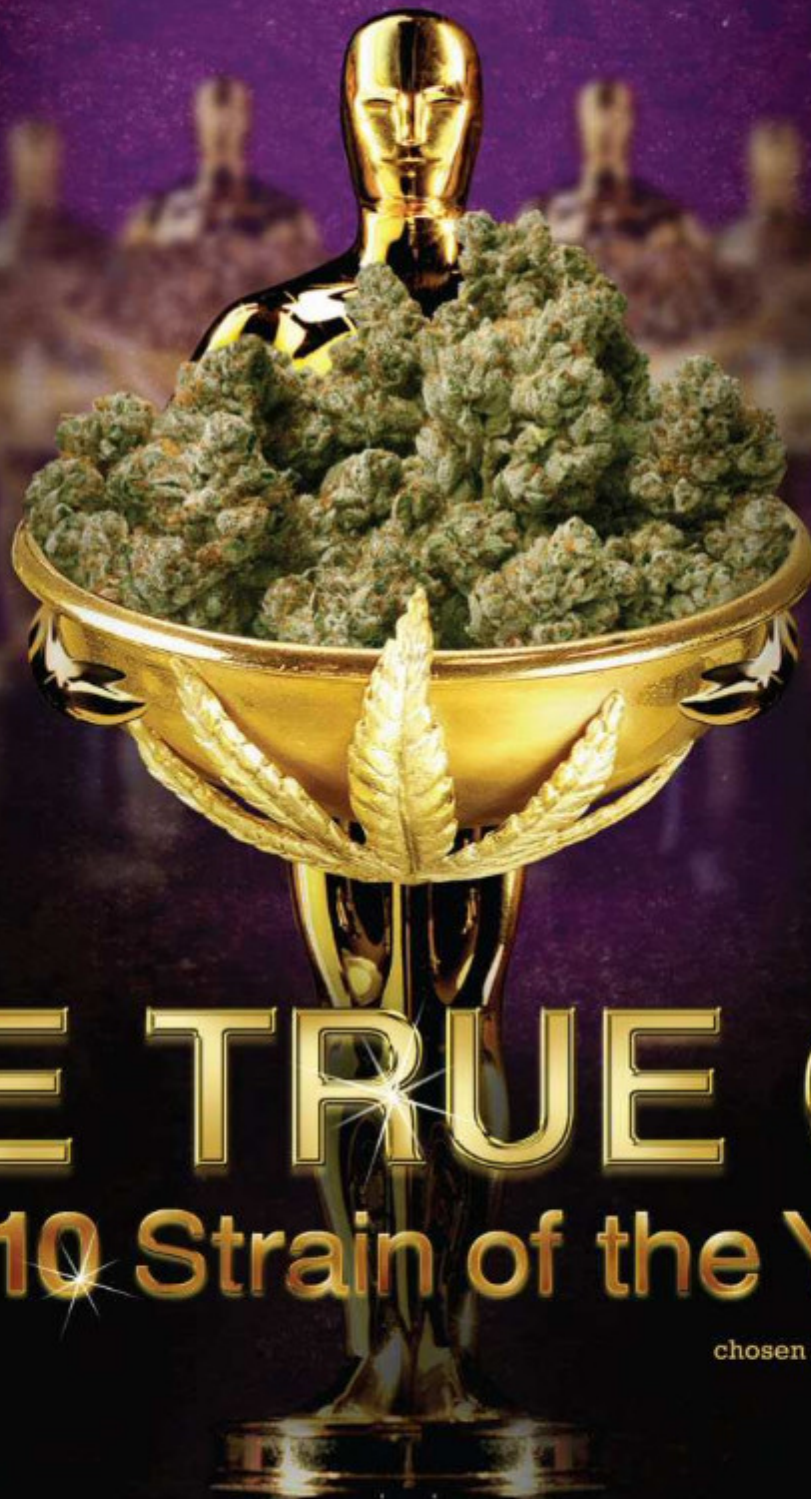
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INTERVIEW BY  
DAN SKYE

# HANNIBAL BURESS

## THE HIGH TIMES INTERVIEW

Hannibal hangs out  
in New York City.



**I**F YOU CHECK OUT THE WEBSITE OF COMEDIAN HANNIBAL BURESS, THIS IS WHAT YOU'LL READ ON THE BIO PAGE: "HE'S APPEARED ON TELEVISION A LOT. AT LEAST 10 TIMES. ACTUALLY IT'S WAY MORE THAN THAT. HE'S THE COHOST OF *THE ERIC ANDRE SHOW* ON ADULT SWIM. HE'S A CAST MEMBER ON *BROAD CITY* ON COMEDY CENTRAL. HE'S HAD FAILED TV SHOW DEALS OF HIS OWN. HE TOURS REGULARLY DOING STAND-UP COMEDY. THERE'S OTHER STUFF ON GOOGLE THAT YOU CAN FIND. HAVE A NICE DAY."

THAT MODEST BLURB BELIES THE COMEDIAN'S SOARING

STOCK. CURRENTLY IN THE MIDST OF HIS "COMEDY CAMISADO" TOUR, BURESS IS A FRESH COMIC VOICE BLESSED WITH THE ABILITY TO FIND HUMOR IN HIS OWN FOIBLES AND TRAVAILS AND THEN DELIVER IT TO THE AUDIENCE IN WHAT SEEM TO BE UNPLANNED, COMPLETELY IMPROMPTU STREAM-OF-CONSCIOUSNESS RIFFS. A BUDDING CELEBRITY WITHOUT ARTIFICE, BURESS IS GENUINELY THANKFUL TO BE WHERE HE IS TODAY—AND AS HE DISCOVERS THE INS AND OUTS OF BEING A STAR, HE CONTINUES TO MINE EVEN MORE NUGGETS OF ABSURDITY FOR LAUGHS.

**I know of two Hannibals—Hannibal Lecter and the Hannibal who nearly conquered Rome riding elephants. How did you get your name?**

I'm named after the guy who nearly conquered Rome.

**Why did your parents name you Hannibal?**

'Cause it's a great name and they expected great things for me.

**Where did you grow up?**

The west side of Chicago. It was good, man. It was, uh ... a horrible neighborhood, but it was okay—nothing too crazy. Overall, I had a pretty solid upbringing.

**Were you known as a funny kid?**

Yeah. What I mean is, people goof off in high school and grade school, but I didn't know that I wanted to do comedy. You act funny for your own personal gain. I wasn't the funniest in my group—in high school, I had friends that were definitely funnier. We always talked about each other's clothes or just talked trash to each other. You had to be funny, because if you had no acumen for humor at all, you would just get crushed. People gonna roast you, so you had to have some jokes.

**So when did comedy become a serious thing for you?**

I started doing it in 2002. I started going to the open-mic things in college. I went and watched and decided to try it out and got into it from there. It was a lot of fun. It was intoxicating. I just really enjoyed performing—I enjoyed having that outlet to send out my ideas and be creative.

**Is the process discouraging, having to wait around for time slots? Sometimes you have no audience. Is it hard to stay optimistic and driven?**

No, 'cause I just really wanted do it. So if it means



**"I've written some good stuff on weed. But sometimes it has my mind blown so much that it's tough to catch what you're thinkin' of, your mind is just firing so fast."**

being 35th on the open mic, what else do I have to do that's better than trying to pursue my dreams, even if I had to wait two or three hours? I was in my early 20s. I can't think of what I'd rather have been doing. Yeah, some of the time, it wasn't ideal—but if you're trying to do what you wanna do, you go through that.

**There's a certain naive truth to your standup; you reveal the comedy of a situation almost unknowingly. Did you develop that style over time?**

It's just what I know. There's not really "development" to it—it's just what I really think about things and how I see the world. For the most part, the stuff that I do onstage is pretty close to what I think. Every now and then I'll exaggerate, say something kind of crazy. But 95 percent is how I really feel about stuff. It's not a façade—it's not a character or anything. It's what I think.

**But as a comedian, you're certainly aware of the rhythms in the delivery of a joke. Woody Allen said that sometimes**

**he could take a whole day constructing the rhythm for a single joke.**

No, I don't spend a whole day working on a goddamn joke. I mean, I'll work it out onstage—but as I was saying, I know how to present ideas to an audience to make them work. You can't just say it onstage like some random asshole; there has to be some art to it, some presentation. That just comes with time and comfort and repetition.

**Does pot figure into your creative process at all?**

I smoke occasionally, but it's not a part of my routine. I mean, I don't need it—I do smoke occasionally, though. I don't like it that much when I'm out and about; I like smoking at home. I like it to be one of the last things I do that day. I don't wake and bake at all; I couldn't do that. If I'm waking and baking, then I'm staying inside my place the rest of the day. I can't start my day off high.

I used to smoke more in high school and college. But I still enjoy weed. I'll smoke and write some jokes sometimes—I've written some good stuff on weed. But sometimes it has my mind blown so much that it's tough to catch what you're thinkin' of, your mind is just firing so fast.

**What's your reaction as America becomes more favorable to pot?**

I think it's good, man. It's good that it's being decriminalized; it makes sense. People shouldn't be in jail for years for it. It's all out there—the research and different

studies about weed versus alcohol. Alcohol is legal but more dangerous; it causes violence. I mean, that's all out there. What's so funny to me is that different states can have their own thing. One state can say, "This is what we do here." But another state can say, "If you did that there, that's okay—but we don't fuck with that shit here." It's pretty goofy and arbitrary.

**People of color have far higher arrest rates for pot than white people. What's your reaction to that?**

That's not shocking—it's true for all arrests. People of color are profiled by the police more overall. The police have been doing that for years now, and they might continue to do it for a long time. Certain individuals and certain groups aren't in a great place in this country, so there's a lot of progress that needs to be made.

**You seem pretty laid-back. What really pisses you off?**

People who aren't reasonable ... you know, when you try to be logical and intelligent, and they just have a wall up and don't wanna help you out at all. It's when people use the rules as a way to be an asshole. My example is, I lost my ID while traveling a couple of weeks ago. I didn't have ID, but you can fly without ID—they just really search you. Like I had insurance cards and copies of my ID; I had emails, prescriptions ... so if you can prove your name and address, you can fly. But they give you a full pat-down and look through your bag.

So, like, I've been touring: three days, three different cities—I was doing three one-day flights back-to-back. It was awful and I don't recommend it to anyone. I'd been traveling without ID for about two weeks 'cause I wasn't able to get a license. Then I flew into LA—I was going to work on this movie called *A Band*



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of *Robbers*. We were filming south of LA, outside of Downey.

So I'm checking into the hotel. I have an insurance card, I have copies of my passport, I have all this stuff that proves that I am who I say I am. But the desk clerk checking me in says, "No, you have to have a government ID. I don't know if this is you."

I say, "Okay, that's the rule. Have a look at my website. I have a website with my name on it."

She says, "That could be, but you could have made that up. You could have made that website." Oh, for real? I could have made a website—this elaborate fraud scheme—just to try to fucking sneak into the Embassy Suites in Downey, CA? I'm showing her stuff with my name on it, my face on it. I'm like: "Can't we do a Google search? If I gotta prove who I am, if you wanna prove identity, why don't we just look up my name on the Internet?" She wasn't willing to do any of that stuff; she was just behind the fact that "Yo, you gotta have a government-issued ID." Okay, that's the rule—but it's obvious in this day and age that if somebody doesn't have ID with them, there's ways that you can prove who they are without it. But if you wanna be an asshole, you just say, "No, it's the rules."

I was a bit hung-over, and I got so angry that I just started shaking. I kept trying to use logic, like: "Look at me ... look at me in my eyes like a fucking human being! If I was committing fraud and trying to check into this hotel room for bad purposes, don't you think I would have just left and went to

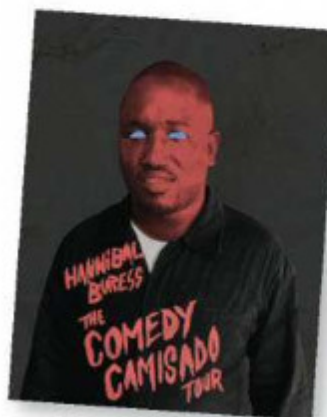
another hotel instead of being here and talking to you for this long?"

**A lot of your comedy seems to involve narrating things like this that happen to you.**

Yeah. But that's the thing that really bothers me, that really gets me—people won't use logic.

**So what makes you laugh?**

Funny jokes, man. No particular subject matter. Good jokes—well-delivered, thought-out stuff. Yeah.



**Hannibal is knockin' 'em dead on the road.**

**Who are the comedians that inspired you?**

I like Dave Chappelle, Bill Burr, Louis C.K. Those guys are awesome.

**You were a writer for *Saturday Night Live*. How was that experience?**

It wasn't ideal, but it was still good. It allowed me to meet people that I still keep in contact with today. I got opportunities and advice. I didn't get a lot of sketches on—I would have liked to have had more on-camera opportunities. But that job really shoved me on the path to what I'm doing right now, so I don't regret my time there. I appreciate the opportunity and what it did then—and what it's still doing for me.

**Sometimes success breeds paranoia or neurotic**

**behavior. How is success working out for you?**

It's different, man. It's good and stuff, working more—you can help people out with opportunities or be able to pay your parents' bills ... things like that. But it's crazy, too. You do start to question people's motives, why they're being nice to you. But it's not really that bad a thing.

But weird things do happen. I got to LAX this morning, and I walked over to check in and TMZ was there—and TMZ has never been there when I'm about to fly. I don't know if they were waiting for me or somebody else, but they were just like, "Oh, let's talk to Hannibal!"

So when I'm done, I go back to check-in and I'm about to pass the lady who looks at your bag to see if it's the right size. I travel carry-on all the time, every time—it's my regular bag. I've been flying with it for the past year. So all the cameras are on me, and she's like: "Oh, your bag is too big." She made me put it in the sizer, which I never have to do. I never have to size that bag ... and it didn't fit in the sizer. Because of that, I missed my flight—because the cameras were right there and this woman wanted to show off for the cameras. That was a pretty interesting morning situation.

**After Robin Williams's death, many comedians said that depression isn't unusual for comics. Any insights into that?**

Nah. I don't suffer any depression on the job; I enjoy what I do a lot. When I have to write commission checks to managers—that's my depression. ✨

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# Cultivation Clinic

Increasing yields by controlling internode lengths.

By Nico Escondido



The stacking of short internode lengths between bud sites keeps indoor plants short and increases yield.



## The Advantages of Keeping It Short

Internode lengths are the distances between branches that emerge from the cannabis plant's main stem. The shorter these internode lengths are, the more compact a plant will be. This, in turn, equals more plant growth proportionate to the same amount of root growth. Keeping internode lengths shorter is also important because it allows plants to develop more efficiently so that their yields can be maximized.

For indoor growers, it's important to remember that a grow light's intensity decreases by half for every foot it's moved away from the plants. Having taller plants in your indoor garden means that the light source must be hung higher, resulting in the lower parts of your plants getting much less light. Additionally, the

taller a plant grows, the more energy it must expend developing a thicker, longer stem and transporting nutrients throughout the plant. This is energy that could be better used developing bigger flowers (yield) and more trichomes (potency).

In terms of spacing, smaller, squat plants can be placed closer together, thereby allowing growers to fit more plants in a limited space. Conversely, taller plants cast more shade on their neighbors and create the need for more space between plants.

Finally, if you plan to supplement your garden with carbon dioxide, you should keep in mind that CO<sub>2</sub> is heavier than air and naturally sinks to lower levels in the growroom. Thus, growing taller plants indoors makes it harder to supply them with adequate CO<sub>2</sub>.

## Controlling Internode Lengths

There are three main non-chemical methods that let growers control their plants' internode lengths and keep their gardens short and efficient. The first involves simply positioning your grow lamps as close to the garden canopy as possible. This is because plants use extreme red light (760 to 800 nm) as a barometer for being overtaken by neighbor plants. The far red end of the spectrum is also the only wavelength of light that penetrates foliage easily—so when a lamp is placed too high above the garden and only this red light makes it down to the plant, its far red phytochrome is activated, sending the “stretching” signal to the rest of the plant so that it begins growing taller in search of normal light. This is also a reason why it's preferable

to use metal halide (MH) bulbs during a plant's vegetative phase, since the heavier white/blue spectrum enables a plant to grow squat, with shorter internode lengths.

Another method to keep plant height down is to use fans in the garden or gently shake plants a few times a day. This creates vibrations that disrupt the elongation of cells and causes plants to thicken their stem walls instead.

Temperature is the final method by which plant internode lengths can be kept short, specifically by using what's known as "negative differential" in daytime and nighttime temps. Plants in rooms with slightly warmer temperatures during the dark cycle have been shown to grow much more compactly. Of course, this is a bit tricky to achieve, as the room is often warmer during the light cycle due to heat from the lamps. However, some growers achieve "neg dif" by turning off any air conditioning during the dark cycle, or by using a space heater near the garden. ✨

### Featured Strain of the Month: **Sour Grape, 20.85% THC**



Diesel and Grape Ape. Competitors in three of our Cannabis Cups have claimed the latter, and from our standpoint, the Diesel/Ape combo makes the most sense given Sour Grape's intense flavor profile and greenish-purple hue.

Lineage aside, this strain packs a big *indica*-style punch and tips the scales at over 20 percent THC. Its medical uses are far-ranging, including inflammation and muscle-spasm reduction and as a sleep aid or appetite stimulant. A few top growers in California recently stabilized the strain, and its popularity has been growing steadily around the country. Keep

an eye out for this beauty, as these days she may be right around the corner.

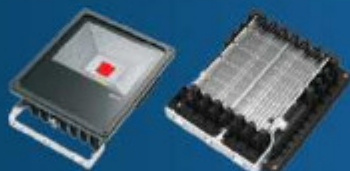
One of the best-looking strains out there today, Sour Grape comes with some debate over its lineage. Some breeders claim that it's a combination of Headband and Grapefruit, while others say it's a cross between Sour

an eye out for this beauty, as these days she may be right around the corner.

*Thanks for reading, everyone, and remember, grow ... and help the world grow, too!*

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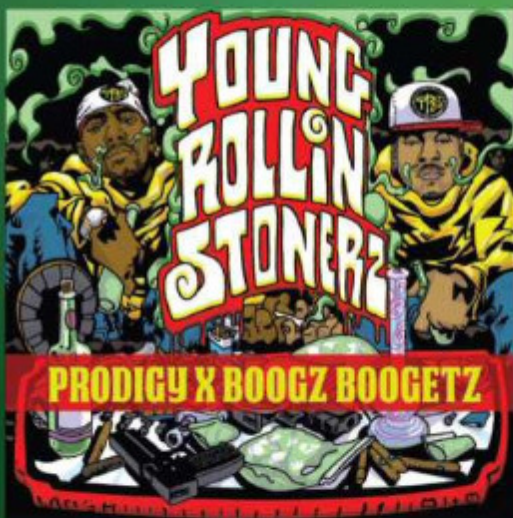
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# Expert Grow Advice

Seed size, window-sill weed, big pots, hermaphrodites and more ...



Send your cannabis cultivation questions to @deardanko or deardanko@hightimes.com.

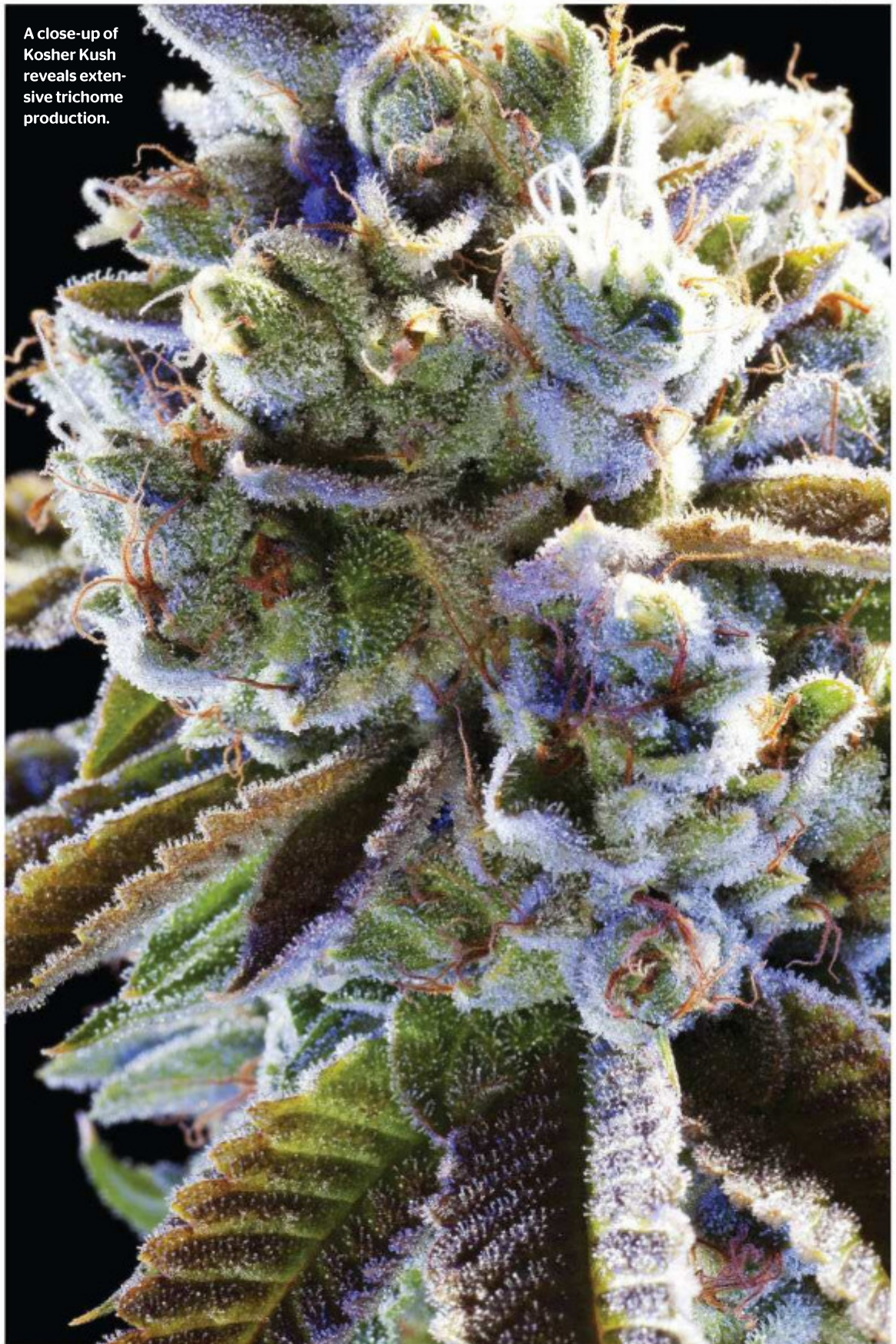
SUBJECT: **Does Size Matter?**

FROM: **Michael R.**

🌿 I just bought a five-pack of seeds, and one seed in there was three times the size of the others. Is it like puppies, where the one with the biggest paws gets to be the big dog? Also, Danny, I'm 54 years old and very sick. I need to know what strains would most help me with lack of appetite? I need a super-munchie strain that is readily available. Thank you for all your advice over the years!

Dear Michael,  
The size of the seed doesn't directly affect the size of the plant. It's curious, though, that one would look so different from the rest. I would keep a close eye on all of the plants as you grow them out, because it seems a bit suspect for there to be that much variation among seeds. As far as strains that help with lack of appetite or nausea, I always recommend *sativa*-dominant varieties such as Trainwreck, Super Lemon Haze and Island Sweet Skunk; however, some *indica*-dominant strains can also bring on the munchies, including Kosher Kush, Tahoe OG or Ogre. Hope that gives you enough to choose from, and best wishes for a speedy recovery!

A close-up of Kosher Kush reveals extensive trichome production.



*Danko Tip:* Always oxygenate the nutrient solution in your reservoir using an air pump and air stones.



Seed size is less of a factor than the genetics within the seeds themselves.

SUBJECT: **Window Weed**

FROM: **Corey**

🌱 My buddy and I were wondering how much pot a plant grown in a window will yield? I can't really afford fancy grow lights or air conditioning, so I'd like to know if it's worth my time just to crack some beans and let them grow out like houseplants.

Dear Corey,

It's possible to grow buds on your windowsill, but there's a number of factors that will determine how much you'll yield. First, the window should be southern-facing and get full sunlight for as many hours of the day as possible; otherwise, your plant will be spindly and won't yield much at all. Also, you need to be sure that the window itself is clean (as well as not tinted). Apart from those considerations, plants on a windowsill

indoors can dry out very quickly, so be sure to keep them well watered. You shouldn't expect a massive yield, but it's quite possible to grow buds this way—and it's also a great way to get started without having to invest too much on equipment. Nothing beats the experience you gain when you're actually cultivating cannabis yourself, so get growing today!

SUBJECT: **Seeds and Herms**

FROM: **Nasty Nass**

🌱 So I started five seeds indoors that I purchased last year from a seed bank I'd heard about, thinking that I was getting feminized seeds, but it seems they were actually chosen at random. In the beginning, I ran my lights 24 hours a day, but in preparation for the plants' transition to outdoors, I changed the lights to 18/6

for the last month or so. All of a sudden, one of the five started showing signs of being male, although the others haven't. My question for you: Is it safe to assume that the rest are female? Or did I stress the plants by changing the light schedule and cause a hermaphrodite myself?

Dear Nass,

It's not clear from your letter where you ordered the seeds, but it's never safe to assume that your plants will be female (particularly since, in this case, at least one seems to have turned out male). But it's doubtful that switching your light cycle from 24 hours on to 18/6 on/off would have caused a female plant to turn male, so you should carefully monitor the other seedlings for any signs of male flowers or hermaphroditism. And in the future, be sure to order from reputable seed companies—though even then, you should always keep an eye on your plants during the first few weeks of flowering.

SUBJECT: **My Pot's Too Big!**

FROM: **Mario A.**

🌱 My question concerns starting seeds in larger containers. I tried this once but ran into problems with overwatering, and then the container took a long time to dry out, which led to some mold. How do I manage water levels when starting seeds in large containers, and what's the best way to handle the runoff? Or do you avoid watering to runoff until the plant is bigger—and, if so, for how long, and does salt buildup then become an issue?

Dear Mario,

When growing seedlings in large containers, it's important not to overwater them. The problems you're describing are all due to having too much water in your growing medium. Because the seedlings' roots are so short, you should take care to water only the layers of mix in which they're prevalent. Watering from below is a great way to get young roots to stretch and seek out water, resulting in more vigorous growth up top. But you certainly shouldn't be watering to runoff that early in your plant's life.

Also, as they grow bigger, never allow your plants to sit in stagnant runoff water. You may experience a little salt buildup, but once the taproot has



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*Danko Tip:* Never allow your plant containers to sit in stagnant run-off liquid after watering.

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reached the bottom of your container, you can start watering to runoff in order to leach some of those salts from your medium. Another way to avoid salt buildup early on is to feed your plants at one-quarter to one-half the strength recommended on the nutrient bottle. Underfeeding is much easier to fix than overfeeding.

You can always start your plants in smaller containers and transplant them as they grow—just be sure they don't become too root-bound prior to the transplant. Also, be gentle when removing the root-ball, placing it into its new container and backfilling with extra soil. The roots will recover much more quickly if you take care not to disturb them too much.

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SUBJECT: **Grow for Life**

FROM: **T.**

🌱 I lost the lower half of my body to an IED (improvised explosive device) in the war. I retired after 22 years of active service and 15 years in the reserves. I was/am an explosive-ordnance disposal or EOD tech (Navy), rank of senior chief petty officer. Weed is about the only thing that helps me with the pain and spasms. I take a total of 36 different pills a day, and I hate the side effects from all those meds. Is it easier to grow my own? Tennessee has no med-pot—most think it's still the '60s here. Can you give me any help on what I need to get started? Going to another state is impossible: I can't ride in a car over 30 minutes or I start having spasms and increased pain. I'm stuck in a hole, trying to crawl out.

Dear T.,

It's heartbreaking to read your story. Even sadder is that I often hear versions of this tragic tale from other veterans. It's disgraceful that, as a country, we can send you off to war and then not allow you to alleviate your pain in any way that helps. Thank you for your enormous sacrifice on behalf of us all, and know that we're working to ensure that you and others like you won't have to continue to suffer forever.

It's difficult for me to recommend that you grow your own in Tennessee, where the penalties for cultivation are harsh. At the *NORML.org* site, I see that even growing less than 10 plants can lead to a felony conviction and one to six years in prison. If there's anything you can do to get to a more forgiving state,



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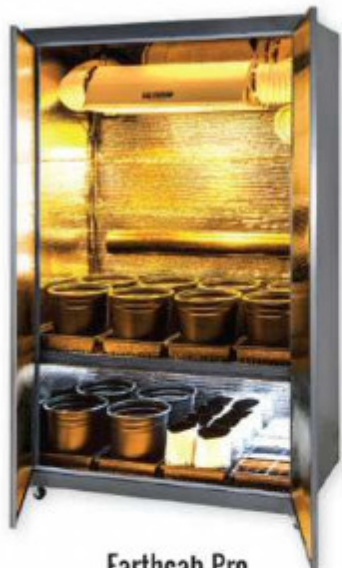
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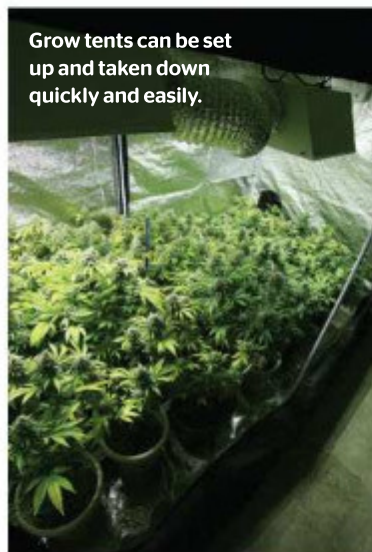
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*Danko Tip:* Spider mites reproduce faster in warmer temperatures, so cool your room at any sign of infestation.

Grow tents can be set up and taken down quickly and easily.



such as Colorado—to which I found one-way flights from Tennessee that were under \$100 and just over two hours—please do. I know of many “reefer refugees” who have made it to the promised land, and all are much better off now.

Having said that, if you still wish to grow where you are, buy yourself a good grow guide (such as *Marijuana Horticulture: The Indoor/Outdoor Medical Grower's Bible* by Jorge Cervantes), keep on read-

ing *High Times* and checking out our website, and listen to my podcast *Free Weed* for abundant information to get you started. You'll likely find that growing your own medicine can be fun and rewarding. Just be sure not to tell anyone about it that doesn't need to know.

You'll also need a space to grow, and I recommend getting a grow tent. You'll need a grow light as well, and for beginners, I think a 400-watt high-pressure sodium (HPS) fixture, ballast and bulb are the most appropriate. Next you'll need seeds or clones, which can be difficult to obtain but certainly not impossible. You can purchase a pack of seeds online and then start a mother plant of your own from those seeds. That way, you won't have to rely on buying seeds every time you want to grow.

SUBJECT: **Managing Pests**

FROM: **Alexander in PA**

🌿 My wife and I have been growing outdoors, but we're looking into grow boxes now. Outdoors, we've been experiencing some insect problems (mostly mites). If you're able, please give me a better understanding on how to use tobacco-leaf tea as an organic pesticide (i.e., the amounts to be sprayed and the preferred concentration), or whether I should be using it in the first place.

Dear Alexander,

I don't generally recommend tobacco-leaf tea because nicotine, the main active ingredient, while effective as a pesticide, is also highly toxic—so it's just not something I want soaked onto my plants. Neem oil is much less toxic and very effective when used as part of an integrated pest management (IPM) system. This involves attacking your infestations with a variety of organic methods; you can liken it to targeting different muscle groups with physical workouts. It's always best to switch up your techniques, because pests can build up tolerances if you use only one thing against them.

You should find that you have less pest issues in a grow box than you did outdoors. Plants inside are much less likely to get bugs—but if they do, those bugs have no natural predators, so infestations can happen fast. That's why you should inspect the undersides of your leaves and the stems of your plants frequently. 🌿

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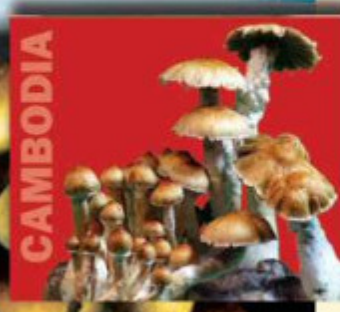
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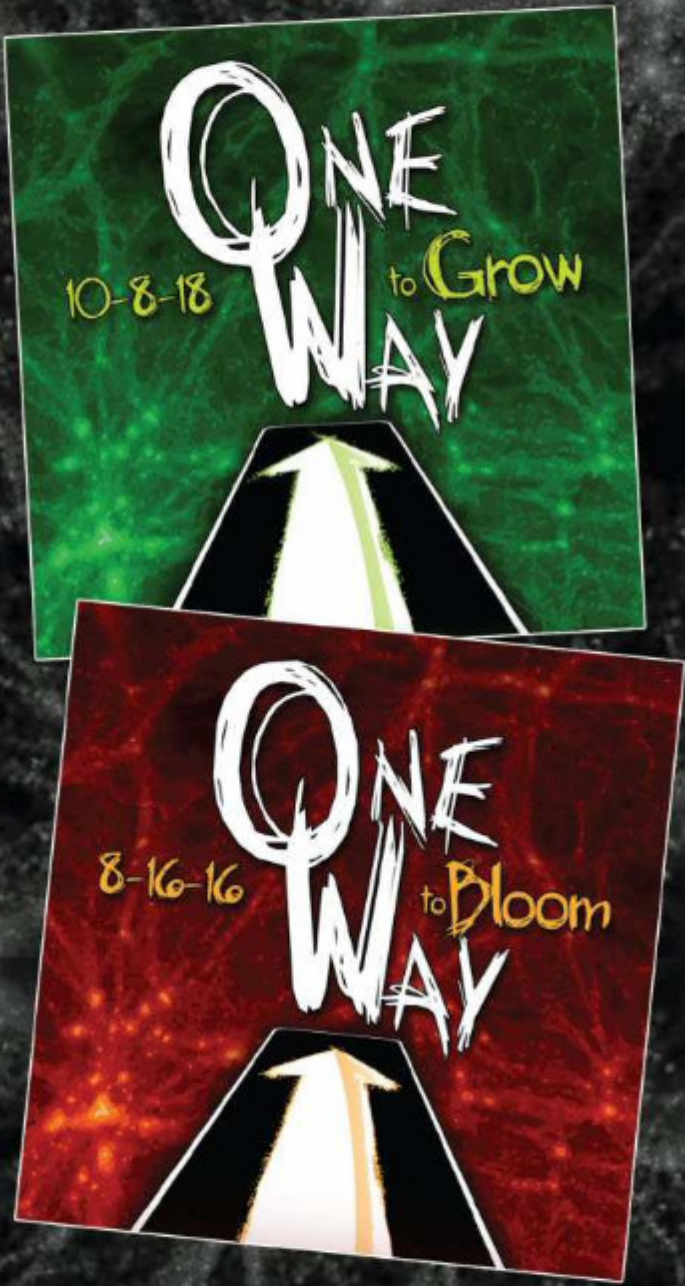
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## Higher Learning

Booze vs. pot, pepper for paranoia and college highs.

Got a question for Dr. Mitch? Email him at [420research@gmail.com](mailto:420research@gmail.com).

What's the word on alcohol versus marijuana in teens?

Twit R.

Hi Twit,  
The research of Joseph Palamar, a professor of behavior medicine at New York University, revealed that teen marijuana users were more likely to report no negative consequences than those who pounded brews. Nevertheless, neither the plant nor the alcohol was harmless for everybody. Marijuana tended to lead to more trouble with authority figures like teachers and supervisors. Alcohol was more likely to generate regretful behavior (especially in females) and dangerous driving.

Can black pepper really keep paranoia to a minimum?

Gordon Ramses

Hi Gordon,  
Pepper in huge doses contains terpenoids, some of which might contribute to the cannabis experience. Myrcene, one of the pepper terpenoids, seems to contribute to "couchlock," i.e., sedation. CBD is probably a better blocker of paranoia. Of course, nothing beats taking in a fun, safe environment with reassuring friends and pleasant things to do.

My campus is plastered with posters stating how many people drink alcohol, but there's never anything about cannabis. What gives?

Moe College



A buzz beats a drunk.

Hi Moe,  
These "social norm" campaigns rely on one idea: Students who drink a lot tend to think that everyone does it. Once they realize that most students don't drink as much, they drink less too.

By contrast, cannabis users don't seem to care what other people do. When they learn how few people on campus actually commune with the plant, it has little impact on how often they use. In addition, many school administrators don't want big posters lining the halls if they suggest that *any* students are breaking the law.

What do you think will happen now that Philadelphia has decriminalized marijuana?

Ben Franklin

Hi Ben,  
Cops will have more time to bust rapists, thieves and murderers! 🌿

Dr. Mitch Earleywine, PhD, is a professor of psychology at SUNY Albany and the author of *Understanding Marijuana* and *The Parents' Guide to Marijuana*.



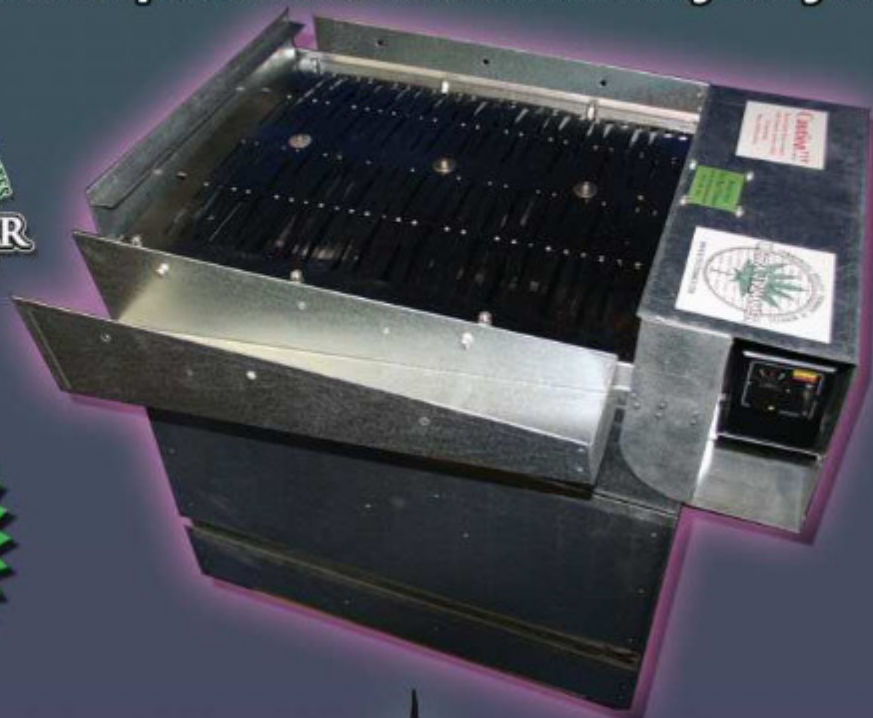
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# The Great Extract Debate

Solvent or solventless? Boiling down the dispute as to which method produces the cleanest, most dab-worthy concentrates. *By Joshua Shipman*



What's in your bowl?

**O**rganic and veganic methods of growing cannabis have taken over the cultivation industry. Producers as well as consumers have begun to see that force-feeding synthetic chemicals to our plants is not a sustainable or healthy way of approaching medicinal production.

Not a lot of industries have the sense of ethics that the cannabis industry is now promoting. This strict adherence to the notion of doing what is right has led me to examine solvent-extracted concentrates with a more critical eye.

On one side of this debate are the organic purists, who argue that the only clean extraction methods are those that leave absolutely no residual chemicals in the final product—i.e., 0 ppm. These concentrates are either water- or CO<sub>2</sub>-extracted; therefore, they have the possibility of leaving only a small amount of H<sub>2</sub>O in the finished product.

When ice hash is produced correctly, it's a beautiful, even artistic process to watch, and it results in an even more beautiful product to taste. I find that the terpenes in well-made ice hash are stronger and cleaner-tasting than in most butane hash oil. However, the yields are small compared with BHO production.

On the other side of the debate

are those more focused on the commercial and production value of BHO. The yields are incredibly high, inferior products can be refined, and the entire process is somewhat easier than producing high-quality ice hash.

I have never seen a test result for BHO that showed less than 10 ppm of residual chemicals. However, BHO producers would argue that our polluted environment is far healthier to inhale—not to mention what you take in every time you hold a butane lighter to a pipe.

In my company's retail shop, we carry both BHO and ice hash because consumers demand both. While we're strictly organic growers, there is such a demand for BHO that if we removed it from our shelves, we wouldn't be able to compete with the other retailers.

We've seen both nicely and poorly extracted BHO as well as ice hash. And so I've come to conclude that by embracing both methods, you embrace two different sides of an industry that takes art and science very seriously. This debate will only drive the production of clean concentrates even further, regardless of what method is being used. ✨

*Josh Shipman is the resident grower for Fremont County Cannabis in Colorado. He specializes in organic horticulture.*



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## Coast Riders Pt 2: Stone in the Woods

A surreal celebrity encounter  
among the sequoias.

**A**fter leaving the wilds of Big Sur (as I chronicled last month), my wife April and I continued up the Pacific Coast Highway on our northwest odyssey—through Santa Cruz, Monterey Bay, over the Golden Gate Bridge and onward into the majestic redwood forest. There, we enjoyed a leisurely drive up the Avenue of the Giants, pulling off every few miles for a short hike, a few photos and a serene smoke.

As we neared the end of the avenue, we made one final turnoff—into the Founder's Grove. As we idled down the gravel road in search of a less-tourist-populated spot to get our smoke on, I happened to glance across to my left at an older couple standing by one of the larger trees and did a double take.

"Holy shit!" I exclaimed to April. "I think that's *Oliver Stone!*"

"The director?" she said. "Are you sure?"

"I think so ... but I *have* to find out." I pulled the car around and made another pass. Sure enough, it was him.

"Oliver!" I shouted. He peered quizzically into the window of our Kia Soul, trying to figure out who the hell I was. "Excuse me," I began, "you don't know me ... my name is Bobby Black—I'm the senior editor at *High Times*."

Almost instantly, his expression morphed from befuddlement to bemusement.

"I'm sorry to bother you," I said as we left the car and approached him, "but when I saw you there, I simply couldn't pass up the opportunity to say hello. It's an honor to meet you."

"*High Times?*" he said. "What are *you* doing out *here?*"

"The same thing you are, apparently—on vacation with my wife, enjoying the redwoods," I replied.

"I want to tell you, the *HT* staff all loved your cover, and we really appreciated all the promotion you did for it."

I asked if he would mind taking a quick photo with me, and he graciously agreed. But as April raised her iPhone to take the shot, Stone's wife approached him, appearing concerned, and tried to stealthily



take something from his hand. It took me a few seconds to realize what it was: a lit joint! Like us, Stone had sought out a secluded spot to get high. Now—believing we were just some random fans, no doubt—his wife was attempting to sneak it

away before we could see it. Obviously, she either hadn't heard me say where I worked or didn't understand. In any case, Stone quickly cleared it up.

"No, honey, it's okay," he said. "He's from *High Times*."

"Oh!" she said with a relieved smile.

I was hoping he'd offer me a hit, or at least hold it up for the photo, but no such luck. And despite his outward civility, I could tell he was ready for us to go.

"Thank you for taking time to talk with us," I said as we returned to the car. "Enjoy the rest of your vacation."

April and I spent the next few hours—hell, *days*—marveling over the surreal encounter. Five more minutes hiking, or five minutes less at breakfast, and we surely would've missed them. Upon hearing the story days later, a friend responded, "Wow—how random!" To me, however, it was the opposite of random.

"Synchronicity," said the visionary psychologist Carl Jung, "is an ever-present reality for those who have eyes to see it." Or, to put it another way: I can see the forest for the trees. ✨

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# High History

A major American university archives the cannabis movement for posterity.

Allen St. Pierre is the executive director of NORML. Visit [norml.org](http://norml.org).

**T**his past September, the University of Massachusetts at Amherst held a weekend event to publicly acknowledge the acceptance of NORML's archives, which cover the organization's 44 years of fighting to reform marijuana laws, and which will become part of the world's first drug-policy reform archive housed at a major state-run university.

In 2012, archivists at UMass, observing the watershed changes in American culture and politics regarding marijuana legalization, contacted NORML and expressed interest in acquiring the organization's massive collection of cannabis-related information. Included in NORML's archives are scientific and medical reports; thousands of letters from busted and/or incarcerated cannabis consumers; testimonials from medical patients extolling the utility and safety of cannabis as a therapeutic; and hemp-related agronomical and botanical reports. Also included are legislative strategy papers and communications, political opposition research, litigation and legal documents, fundraising materials, exchanges with media and opinion-makers, and internal communications (sometimes relating to strife and disputes between staffers, or between the NORML staff and board, or between NORML and other drug-policy reform organizations—as the archivists call it, “the good stuff”).



Over the course of two years, tens of thousands of pounds of original documents created since the organization's birth in 1970, plus thousands of photographs, miles of videotape, and loads of really cool cannabis-related memorabilia and ephemera (from NORML and other cannabis-law reform events nationwide) have been painstakingly conveyed to the W.E.B. Du Bois Library at Amherst.

To date, the UMass Drug Policy Reform Archive has been fortunate to receive the personal papers of NORML founder Keith Stroup; Dr. Lester Grinspoon, the pioneering Harvard Medical School professor and author; and Melanie Dreher, the anthropologist and health expert who researched Jamaican cannabis use and culture. The papers of Richard Evans, the longtime Massachusetts cannabis-law reform advocate, and myself are also included. MassCANN, the organizers of the annual Boston Freedom

Rally, donated its own extensive archive covering more than 25 years of activism to the state's flagship university as well. And UMass archivists (and NORML) were overjoyed to learn that *High Times* will also be making a significant donation of some of its unique archives.

In time, this collection will become an open multimedia archive available to scholars, authors, reporters and policymakers from around the world who want to understand precisely how groups of dedicated citizens moved this country from fully embracing cannabis prohibition to soundly rejecting it. (When NORML was founded in 1970, approximately 12 percent of Americans supported legalizing marijuana; today, Gallup polling shows that 58 percent want to see prohibition end.)

NORML's staff continues to work with the university's dedicated archivists and graduate students to procure the materials of other notable individuals, organizations and businesses that have made major contributions to educating the public—and pushed the cultural boundaries as well—in the quest to end cannabis prohibition. ✨

*To provide funding or make your own possibly archive-worthy donation of material, call NORML's Washington, DC, office or email [archives@norml.org](mailto:archives@norml.org).*

## FREEDOM FIGHTER

By Erik Altieri, NORML communications coordinator

### Texas Samaritan

Meet the Lone Star State's Patient of the Year.

Vincent Lopez began his cultural and political activism via self-produced publications like *Grimmoires Magazine* (1994-'99) and *Austin to Amsterdam* (2004). He's an Austin, TX, native who also happens to suffer from Becker muscular dystrophy.

In 2009, Vincent officially entered the cannabis-law reform movement

by combining the elements of Austin culture and cannabis activism in the form of a new quarterly publication, *The Austin 420*, now in its sixth year.

Three years back, Vincent joined Texas NORML as a patient liaison, later becoming the group's director of patient outreach. At NORML's 2012 national conference in Los Angeles, he received the first Renee E. Wolfe Memorial Award, which



honors exceptional individuals in medical marijuana advocacy.

Vincent recently created the Patient Alliance for Cannabis Therapeutics (PACT), a support and empowerment group that provides a safe place for medical cannabis patients to share their experiences and develop the tools required to make legislative change in Texas. In 2014, he was honored as Patient Advocate of the

Year at the Dallas-Fort Worth NORML regional conference.

Vincent makes numerous trips every year to the state capital to lobby for marijuana-law reform, and he says that children are his inspiration. “I am deeply disturbed to see a disabled or sickly child who doesn't have the means to stand up for themselves,” Vincent says. “Interacting with fellow patients—those who you can give your voice and life for—is the best part of what I do.”



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BY PAUL KIRCHNER

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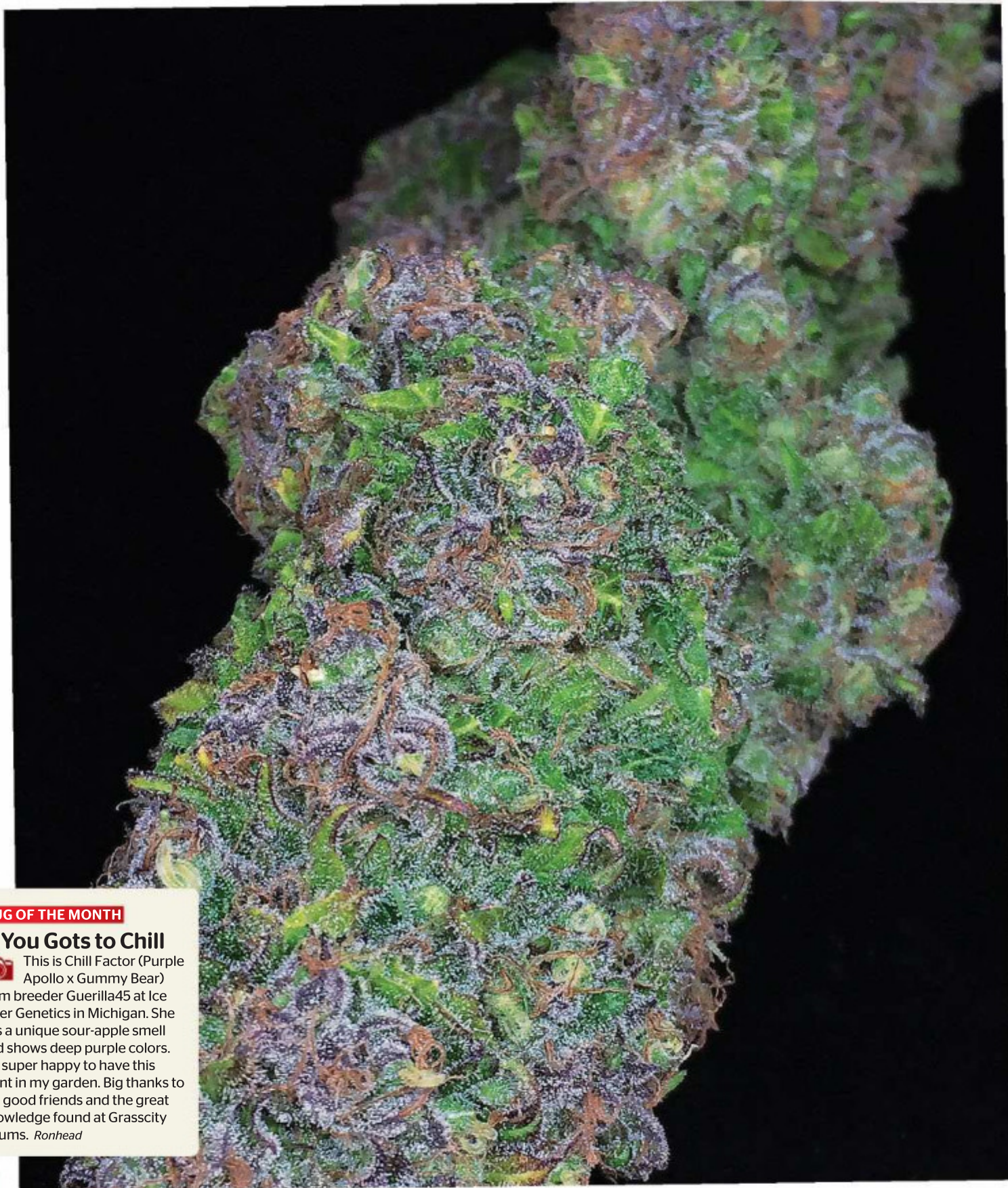
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## NUG OF THE MONTH

### You Gots to Chill

 This is Chill Factor (Purple Apollo x Gummy Bear) from breeder Guerilla45 at Ice River Genetics in Michigan. She has a unique sour-apple smell and shows deep purple colors. I'm super happy to have this plant in my garden. Big thanks to my good friends and the great knowledge found at Grasscity forums. *Ronhead*



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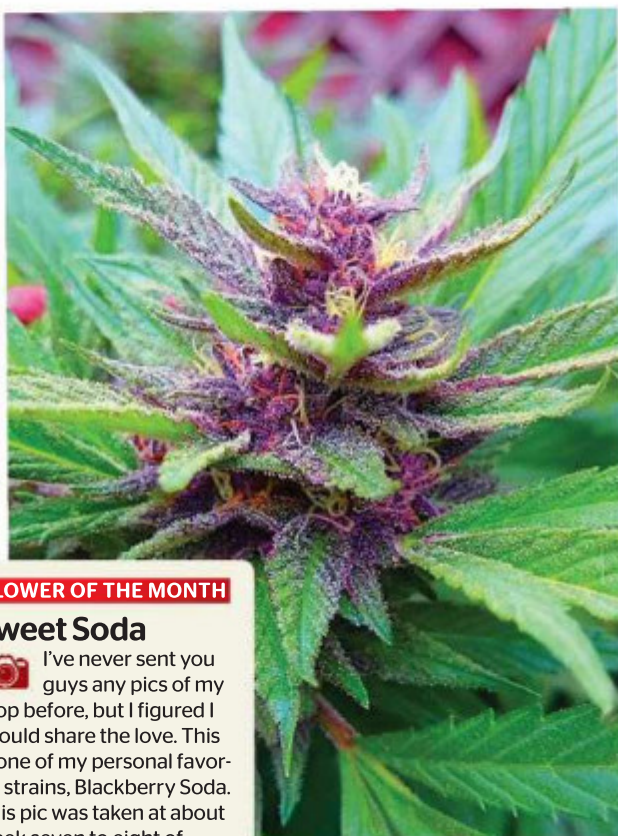
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**GROW OF THE MONTH**

**Pot Papa**

 My father's been reading your magazine for over 30 years and has been growing since he was a teenager. I took this photo of him with a couple of this year's plants, homegrown here in Colorado, and am humbly asking if there's any way you could include it in your magazine. His birthday is coming up soon, and I want to do this as a surprise for him; I know it would be a huge honor. Please help me give him one of the greatest birthdays of his life! *Justin*



**FLOWER OF THE MONTH**

**Sweet Soda**

 I've never sent you guys any pics of my crop before, but I figured I should share the love. This is one of my personal favorite strains, Blackberry Soda. This pic was taken at about week seven to eight of flower. I just cut this beautiful baby down—hope you enjoy, because I sure will! Best regards. *Lifes2real*



**SUNSET OF THE MONTH**

**Hawaiian Punch**

 Aloha from the Garden Island! I'm a medical grower in Kauai, Hawaii. I was busy working in my garden one evening when I looked up and was stunned at the sky above me. Here's one of my Blue Dreams enjoying Mother Nature's beauty. *Ty*

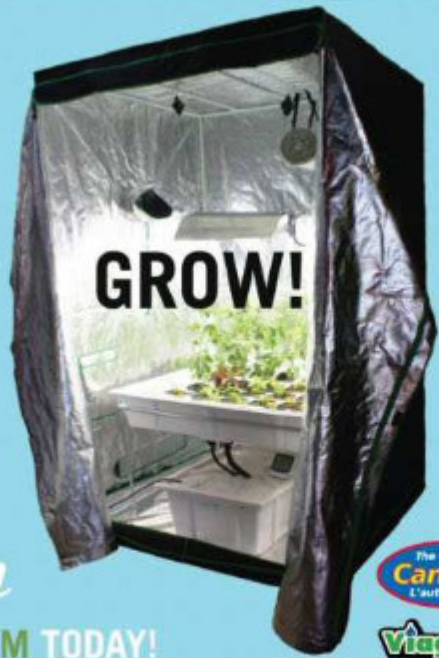


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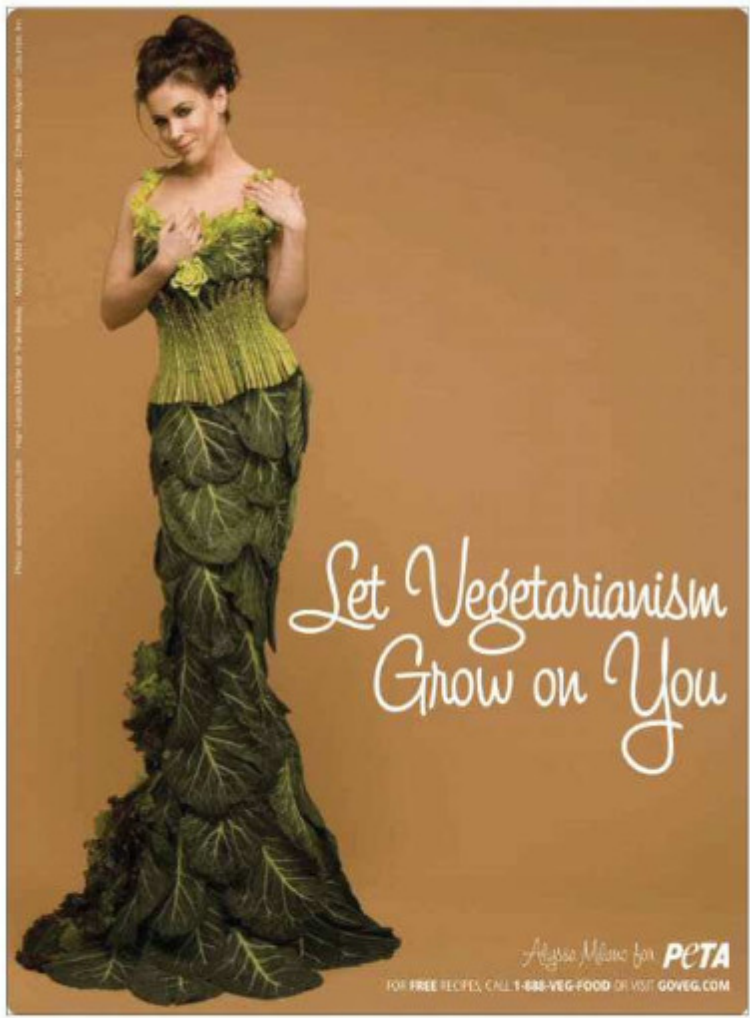
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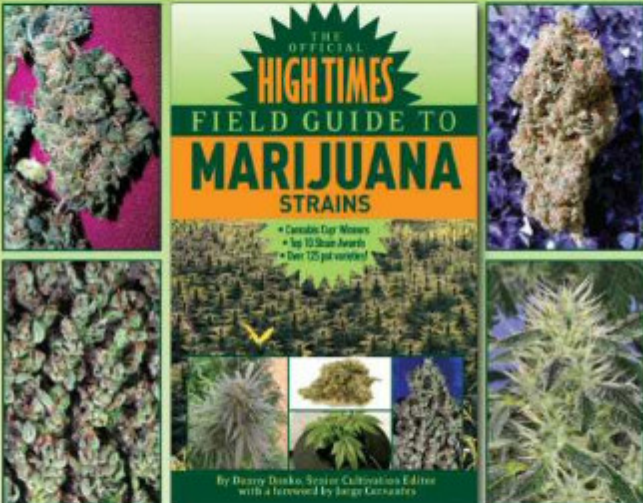
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## ► The ICP vs. the FBI

Where the Insane Clown Posse goes, mayhem is sure to follow. Decked out in clown makeup and high on something more than just life, the band's loyal followers, known as "Juggalos," have grabbed a few violent headlines in their day—but does that make them a gang? The FBI thinks so.

## ► Unwrapping Bubblegum

Our European cultivation correspondent known as Green Born Identity reveals the true history of Bubblegum, a multiple Cannabis Cup-winning strain that's been bred for more than two decades.


## ► High in Winslow

Before the interstates arrived, Winslow, AZ, used to be a popular stop for motorists on the fabled Route 66. Now there's a whole new reason to stop: the Medicine Room, a top-flight dispensary and grow op.

## ► On the Line: Kevin Gogan


The former guard played in the NFL for 14 years and won two Super Bowls with the Dallas Cowboys. Now in his 50s, he uses cannabis liberally as therapy for past injuries. Kevin Gogan speaks out on behalf of pot in the *High Times* feature interview.

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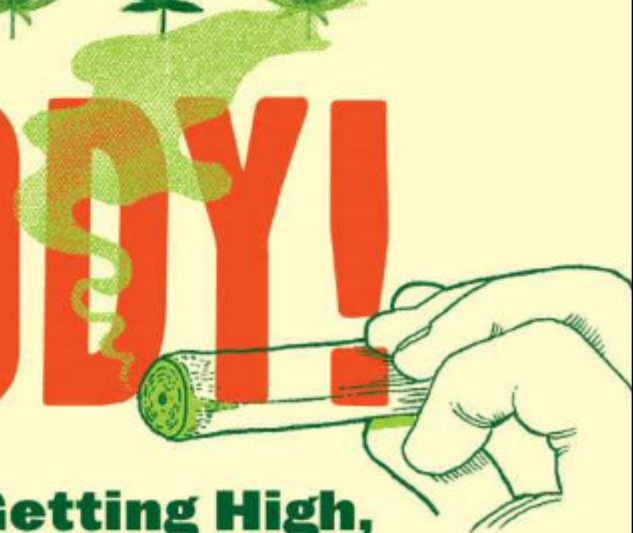
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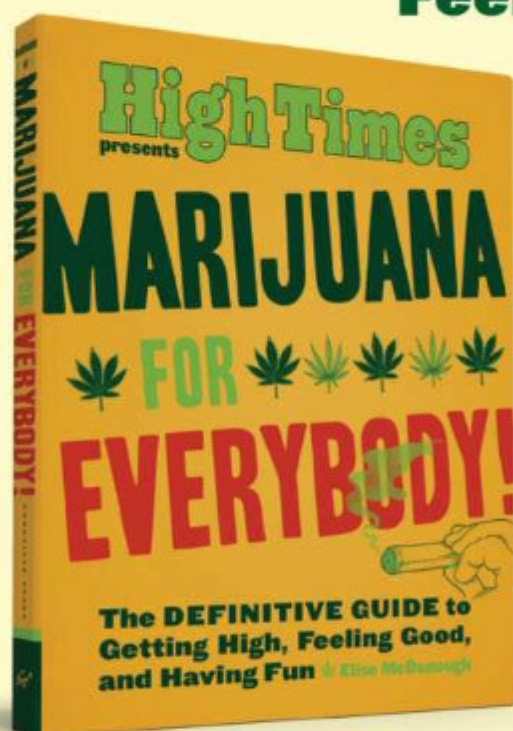
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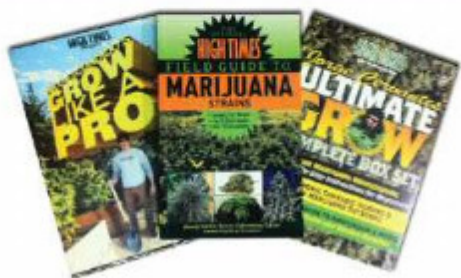
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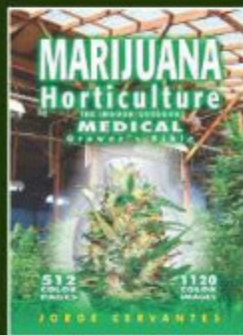


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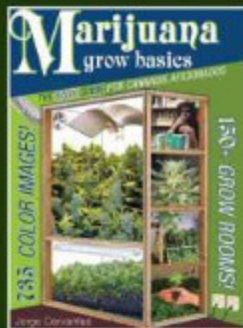
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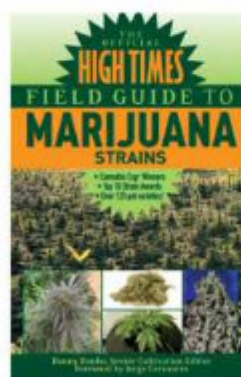


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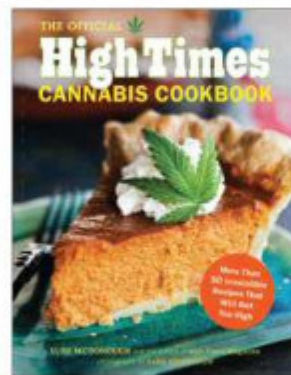


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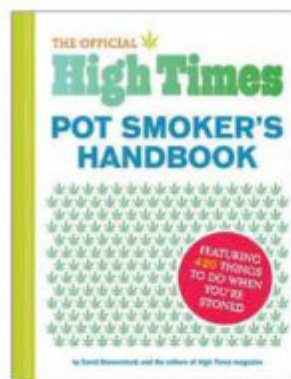
## High Times Books



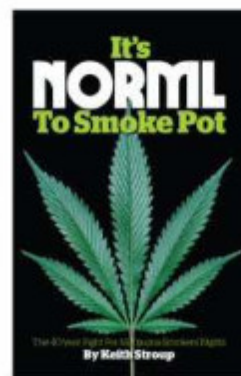
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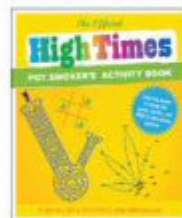
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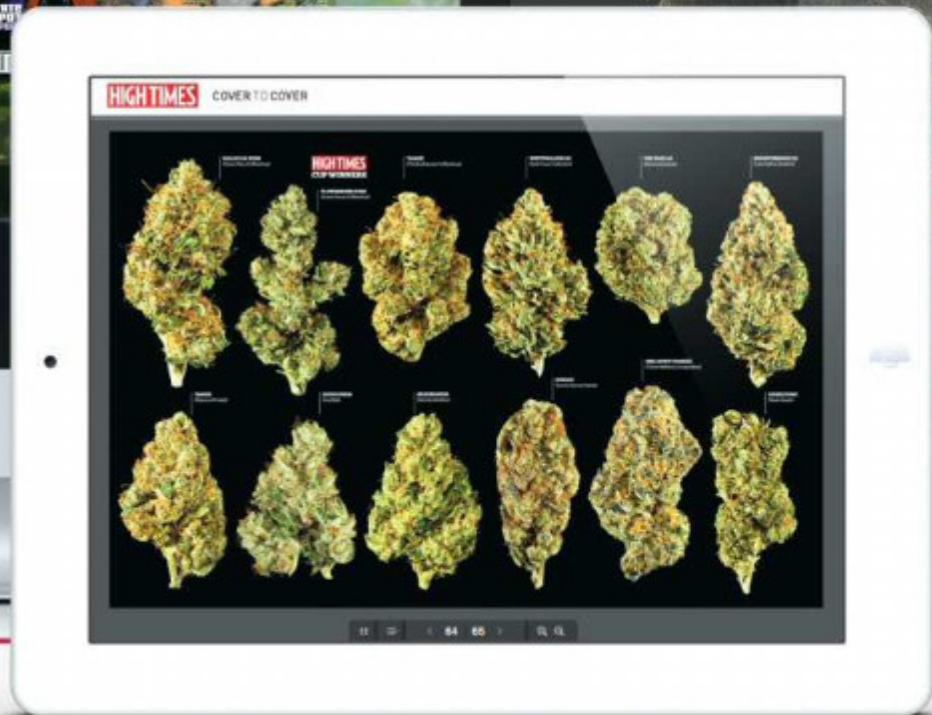
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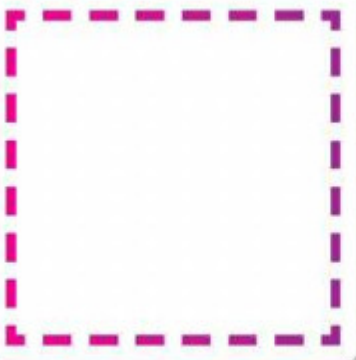


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31 **Grandpa Skye**  
32 **Legalize Weed** Take a bite out of crime...  
33 **#BUSBOMBS**  
34 **Food For Thought!**  
35 **Cham Dog**  
36 **Weed will get you through times of no money better than money will get you through times of no weed.**  
37 **Don't Know yer PAST, Don't Know yer FUTURE!** - Ziggy  
38 **Smoke 2 joints at 8:40**  
39 **Big Red**  
40 **Disco Family**

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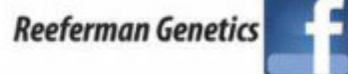


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